Advisory Report

November 18, 2013

Key Findings:

- The CEC has learned that concerns exist in the region related to high costs of fire/EMS services in some areas, and lack of volunteer responsiveness in others.
- Data suggests that substantial extra-jurisdictional responsiveness occurs on the part of certain stronger departments in the region, and that both revenues and costs are not being allocated equitably.
- The CEC considers geographical proximity, quality personnel, and equipment capacity as the three critical components in providing adequate fire and EMS coverage.
- Upon reviewing alternatives related to these three components, the CEC recommends fire protection districts and departments in the region pursue consolidation and resource reallocation toward the creation of four districts with response times strengthened through a stipend or on-call arrangement, each with a one to two Fire/EMS stations.
- The CEC further recommends that the City of Springfield pursue cost reduction through operational changes and engage in a comprehensive program review in order to address budgetary needs resulting from potential reallocations and explore cost drivers described throughout this document.

The Citizens' Efficiency Commission
Room 212
200 South 9th Street
Springfield, Illinois 62701
Phone: 217.535.3110
Fax: 217.535.3111
CitizensEfficiency@gmail.com
http://www.sscrpc.com

Citizens' Efficiency Commission Recommendation: Fire and EMS Functions

Introduction

This report represents a formal recommendation by the Citizens' Efficiency Commission (CEC). Members of the CEC and its research staff have validated information contained in this report. The Commission expresses its hope that relevant local leaders will review the recommendation and take strides toward its implementation.

In light of the research presented below, the CEC recommends that fire protection districts and departments in the region pursue consolidation and resource reallocation toward the creation of four districts, each with one to two Fire/EMS stations, with response times strengthened through a stipend or on-call arrangement.

The CEC further recommends that the City of Springfield engage in a comprehensive program review in order to address budgetary needs resulting from potential reallocations and explore cost drivers described throughout this recommendation.

If necessary, the CEC recommends that a targeted action team be created for the purpose of pursuing and coordinating these efforts.

The Commission is prepared to provide assistance to the greatest extent possible for the review and implementation of these recommendations. The CEC may be interested in further efficiency considerations that develop based on this advisory report.

Background Information

During its review of emergency services, the Public Safety Committee of the CEC encountered information about multiple incidents in which emergency medical response times in outlying jurisdictions of the county suffered resulting from lack of available volunteers in some rural fire protection districts, particularly during daytime hours. After receiving such anecdotal evidence the committee felt compelled to look into the effectiveness of this critical public safety function in Sangamon County. Coupled with preliminary information related to high costs in other fire/EMS jurisdictions of the region, this resulted in a general review of resource allocation, structure, and functions of fire protection/EMS providers regionally. After preliminary review of these issues, the committee presented the following finding to the efficiency commission at its April 2013 meeting, and received support to further review these functions.

There are 29 Fire Protection Districts in operation in Sangamon County, in addition to the Fire Department of the City of Springfield.. The Springfield Fire Department typically budgets over $30 million to provide fire protection and emergency medical services for the City of Springfield and nine surrounding FPDs, and an additional approximately $4 million is collected and expended by the twenty Fire Protection Districts not covered by the City of Springfield. Recent trends have indicated that

volunteer coverage in some areas of Sangamon County has suffered due to increasingly costly and time-consuming certification requirements. Moreover, increasing personnel costs and comparatively high staffing levels appear to be matters of concern for paid departments in the region. The committee requests the full support of the Commission to further review to the quality, effectiveness, and efficiency of fire protection and emergency medical response throughout Sangamon County, with the potential for recommendations related to regional resource allocation.

Efficiency Research Questions

As it pursued its research related to this finding, the CEC asked questions such as:

- How do emergency medical response services in Sangamon County compare to those provided in comparable counties?
- How do fire protection services in Sangamon County compare to those provided in comparable counties?
- Is there empirical evidence that response times in Sangamon County are inadequate or resources are being utilized in an inefficient fashion?
- Is there a minimal standard for acceptable emergency medical response?
- How can fire and EMS equipment and personnel on a pooled regional basis be used most effectively to respond to emergency situations?
- If empirical evidence need exists, how can revenue and personnel be effectively reallocated to provide a feasible and desirable service arrangement?

Ultimately, these questions led the CEC to construct a recommendation based upon review of existing services, peer comparisons and standards for service, fire protection and EMS response times, geographic considerations, a study of cross-jurisdictional responsiveness, best practices, perceived obstacles and challenges, and the probable feasibility of a series of alternatives.

Overview of Existing Services

Fire protection/EMS in the Sangamon County region is provided by a combination of the paid, municipal, full-time Springfield Fire Department and 29 all-volunteer or blended paid/volunteer Fire Protection Districts located fully or partially in the county. In 2007, the last year for which comparable Census of Governments data have been made available, Sangamon County's regional fire protection spending was estimated at $141 per capita annually. Four of its peer counties spent an average of $127 per capita, ranging from the much lower $101 per capita in Champaign County to a comparable $141 in Macon County (see Table 3, p. 9 below, for additional details).[1] Given these comparatively high costs and the contrasting picture of potentially inadequate services in some areas, the CEC explored fire protection and EMS for the region as a single comprehensive whole, in an attempt to develop a working understanding of what resources are available for fire protection/EMS services locally and whether these are being utilized efficiently.

Springfield Fire Department

The CEC first considered the City of Springfield Fire Department as the primary and largest provider of fire protection/EMS services in the region. Although it faces challenges distinct from those of the FPDs in the region, Springfield's large role in providing fire and EMS services makes it a significant component of regional review. The City of Springfield currently owns

[1] Data derived from United States Census bureau's Census of Governments (2007), and ESRI Community Analyst Online's American Community Survey 2005-2009 Population Estimates.

and operates a twelve-house fire protection operation, covering the incorporated area of the City of Springfield. SFD also covers eight of the surrounding fire protection districts.[2] These are considered "pass-through" districts that do not have their own personnel or equipment, and currently contract with the City of Springfield for service, thereby passing their revenues through their administrative structure for another department to provide service.[3] The City funds fire protection through mixed revenue sources including sales tax, property tax, and payments for service from surrounding fire protection districts and the State of Illinois. The Springfield Fire Department is organized as a part of the International Association of Fire Fighters Local 37. The City of Springfield makes up the largest component of the regional per capita spending figures described above, and has historically had higher-end budgetary figures as compared to peer cities. Table 1 provides further SFD data.

Table 1: Springfield Fire Department Basic Information[4]

	2011	**2012**	**2013**
Number of Stations	12	12	12
Total Employees	219	237	228
Sworn Firefighters Only	*209*	*228*	221
Total Expenditures	$30,551,082	$31,672,144	$34,217,891
Personnel/Benefits	*$29,211,967*	*$29,761,557*	*$31,936,826*
Calls for Service	15,925	16,431	2013 totals currently unknown
Fire Calls	*758 (5%)*	*764 (5%)*	
EMS Calls	*8,911 (56%)*	*9,527 (58%)*	
HazMat Calls	*535 (3%)*	*474 (3%)*	
False Alarm	*2,445 (15%)*	*2,425 (15%)*	
Other Calls	*3,260 (20%)*	*3,204(19%)*	
Mutual Aid Given	*16 (<1%)*	*37 (<1%)*	
Total Calls Less False Alarms	*13,480 (85%)*	*14,006 (85%)*	

To provide some preliminary context related to the SFD, in 2008, the City of Springfield's Blue Ribbon Panel on City Finances indicated that Springfield had more firefighters per population than any peer city in a designated study group. At that time SFD had 1.9 uniformed firefighters per 1,000 in population. The study recommended a reduction in force by 12 firefighters to the 1.8 per 1,000 in population level of the City of Peoria. Other peer cities at that time averaged 1.7 firefighters per 1,000 people, with the Town of Normal as the regional low with 1.2 firefighters per 1,000 people.[5]

Since that time (2008-2012), the number of calls for service annually has increased by 2.5%. SFD's force has decreased from 234 uniformed firefighters in FY2009, down to a low of 209 uniformed in FY2011, and is now at 221 uniformed firefighters, representing an overall 5.5% percent decrease over the last five years. Springfield's rate of population growth has also slowed in the last decade, with a 5.9% growth rate form 1990-2000 and only a 4.3% growth rate from 2000-2010. As a result, estimates used in 2008 to gauge firefighters per 1,000 in

[2] Until recently, the City covered nine pass-throughs. However, one of these districts has recently contracted with another FPD for service.
[3] See Citizens' Efficiency Commission (September 25, 2013) "Pass-through Fire Protection Districts." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/PassThrough%20FPD%20Recommendation-FINAL.pdf.
[4] Springfield Fire Department, 2012 and 2013 Annual Reports.
[5] Blue Ribbon Committee Convened by the Honorable Mayor Timothy J. Davlin. November 17, 2008. "Report of the Blue Ribbon Committee on Springfield City Finances," p. 25.

population were high, and given more recent Census data, the CEC estimates that SFD is now up to 1.95 uniformed firefighters per 1,000 people. However, when pass-through districts' population figures are included, this figure falls to 1.63 firefighters per 1,000 people. It is likely that the Blue Ribbon Panel cited above did not include this segment of the population in its analysis.

Firefighters per 1,000 people in peer communities now range from 1.11 in Normal to 1.78 in Peoria for peer cities. SFD's staffing is high in relation to the departments covering peer communities, though not the highest among its peer when accounting for the entire population served by SFD.

The CEC notes that it did not encounter indications that performance of the SFD is inadequate, but that the cost comparisons in relation to peer cities suggest that SFD's operations require additional review. Especially given the service needs in the rural areas of the region, potential cost efficiencies may ultimately benefit residents in all areas of the county. Moreover, costs to local jurisdictions related to personnel are likely to increase in coming years due to healthcare and pension costs, which heighten the importance of a review of the operational costs of the department.

Other Fire Protection Districts

Fire protection districts (FPDs) outside of the City of Springfield vary in size and scope of operation. For purposes of its analysis, the CEC considered these departments on the basis of budget, geographical area, calls for service, and anecdotal information provided by the leaders of these districts. In terms of these variables, the CEC considered FPDs in the county in several tiers.

The first group is comprised of FPDs that are located almost entirely outside of Sangamon County. While important to consider as a resource to Sangamon County districts and because they are partially within the county, this tier did not form a central part of the CEC's analysis (Athens-Fancy Prairie, Elkhart, Virden, Waverly). The next tier of FPDs included those that do not have equipment and must be served by another department or FPD (Curran, East Side, Island Grove, Lake Springfield, North Side, South Lawn, South Oak Knolls, South Side, Western, Woodside). Some of these have been addressed in the CEC's prior recommendation on pass-through districts, yet these districts and the property tax and Foreign Fire Insurance Fund (FFIF) revenues they provide have potential to impact the resource allocation situation on a regional basis.[6]

The third group of FPDs under consideration is comprised of those that have only a volunteer staff with minimal reimbursement, if any (Auburn, Buffalo, Dawson, Divernon, Loami, Mechanicsburg, Pawnee, Pleasant Plains, Riverton, and Williamsville). Some of these districts are more robust in their operations and in their active volunteer forces than others. Finally, the CEC considers Chatham FPD, Sherman FPD, and Rochester FPD to be a distinct fourth tier because they have more substantial operations and budgets. Sherman and Chatham also have some paid staff or provide comparatively more substantive stipends than the majority

[6] See Citizens' Efficiency Commission (September 25, 2013) "Pass-through Fire Protection Districts." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/PassThrough%20FPD%20Recommendation-FINAL.pdf.; and Citizens' Efficiency Commission (April 10, 2013). "Foreign Fire Insurance Funding Administration and Use." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Foreign%20Fire%20Insurance%20Recommendation.pdf

of districts for daytime volunteers to remain at their stations in order to reduce response times.

For the bulk of volunteer FPDs that do not have some sort of paid staffing, a roster of volunteers can receive an emergency page to a fire or emergency medical situation. These volunteers typically travel to the fire house to join available other paged volunteers, and then move fire/rescue vehicles to the scene of the emergency. Some of the FPDs with paid staffing or with local municipal employees that volunteer on their local force have comparatively greater ability to be present at their vehicle location immediately when an emergency call comes in from the E911 Dispatch Center.

Emergency Medical Services

Fire Protection Districts and Fire Departments in Sangamon County also serve as medical first responders in the region. Not all of the existing Fire Protection Districts provide transport services. However, most with apparatus do have some emergency medical capabilities. In Sangamon County, there are few public ambulance service providers. The Chatham Fire Protection District provides ambulance transport service, and the Pawnee Fire Protection District has a non-transport ambulance. The Waverly Volunteer Rescue Squad also provides ambulance services on a more limited basis. The hospitals of Sangamon County do not have designated ambulance services, but instead are both served by numerous private ambulances in the area. The largest of these are America Ambulance Service, Inc., Lifestar Ambulance, and MedicsFirst Ambulance. Table 2, below, briefly summarizes the existing fire and emergency response entities in Sangamon County. For most fire protection/EMS jurisdictions in Sangamon County, the majority of calls for service are medical calls, as opposed to fire calls. For example, in 2012, fire calls made up only 4.97% of the City of Springfield's total call volume.[7] This trend is likely to continue with improved fire safety features in residential and commercial buildings, and is explored further below.

Sangamon County Rescue Squad

In addition to these FPDs and private operators, another existing emergency response agency in the region is the Sangamon County Rescue Squad (SCRS). The rescue squad is a group of volunteers that respond to and assist at rescue situations, particularly those in which unique or technical skill sets are needed to ensure victim safety. The SCRS receives some funding from Sangamon County through the Office of Emergency Management (OEM) for worker's compensation liability insurance, vehicle fuel, and building overhead costs for the space shared with OEM. These costs are minimal, with approximately $1,800 annually for fuel, and overhead costs for building space and liability coverage that are negligible additions in relation to the County's existing OEM budget. In total, the value of County expenses related to the SCRS is approximately $11-12,000 annually.[8]

In addition to these on-going annual costs, the SCRS received some benefits from Sangamon County at the time of the transition from the former Animal Control Center to the building currently used to the Rescue Squad and OEM. About two-thirds of the space of the retained building is used for SCRS storage and functions. Since the County already owned this facility, it is difficult to determine hard costs associated with this building use. However, as a result of this arrangement, the SCRS does not have to rent or purchase space that it would otherwise require. The SCRS has assisted in some cost-sharing with the OEM for its building space as

[7] Personal communication from Bill McCarty, Director, Springfield Office of Budget and Management.
[8] Personal communication from Brad Hammond, Office of the Sangamon County Auditor (September 20, 2013).

well, equipping the building with audio-visual equipment and furniture via volunteer fundraising efforts after its retrofit. SCRS volunteers also mow the lawn and maintain the grounds for the facility.

Finally, the Deputy Emergency Coordinator for OEM also oversees the SCRS volunteer squad on a partially voluntary basis. The County estimates that approximately .6 FTE is invested in these functions, with an estimated annual cost to the County of around $40,000.

The SCRS currently has approximately fifty members. SCRS volunteers have mandatory training each Monday of the year, and have special skills and equipment particularly targeted to meet needs in extrications, certified divers water rescues, swift water rescues, and heavy lift scenarios. They also maintain specialized silo rescue equipment, diving equipment, hazardous materials equipment, and a search and rescue K-9 unit with approximately 20 dogs and 15 handlers. SCRS equipment is funded primarily through voluntary fundraisers, as well as federal grant money. The squad's equipment is listed in Appendix A.[9]

Available Resources

A large amount of fire protection and emergency medical apparatus exists in the region. While no comprehensive reference list of this equipment is currently developed and maintained on a regional basis, the CEC endeavored to collect what information on fire protection equipment was readily available (Appendix A). The CEC notes that, while some FPDs indicated they will have capital equipment needs in the future, the information received did not provide the impression that equipment needs are extraordinarily pressing in these FPDs. Many local jurisdictions indicated that grant funding had been available for their equipment updates, particularly following September 11, 2001, and the accompanying wave of grant funding for public safety agencies.[10]

[9] Personal communication from Bill Russell, Deputy Coordinator, Sangamon County Office of Emergency Management (September 13, 2013).
[10] Blue Ribbon Committee Convened by the Honorable Mayor Timothy J. Davlin. November 17, 2008. "Report of the Blue Ribbon Committee on Springfield City Finances," p.26; Personal communication from Bill Russell, Deputy Coordinator, Sangamon County Office of Emergency Management (September 13, 2013).

Table 2: Summary of Emergency Responders in Sangamon County

	Department/District	Staffing Type	FY12 Prop. Tax Rate	Levy in Sang, County Only-2012	2013 Budgeted Expenditures	Personnel Expenses Only[11]
public	City of Springfield FD	paid (organized)	n/a	n/a	$ 34,217,891 (plus $331,649 FFIF)	$ 31,936,826
	Athens-Fancy Prairie FPD[12]	*volunteer*	*0.2485*	*$34,983*	*$ 865,360*	*$ 6,850*
	Auburn FPD	volunteer	0.1337	$107, 712	$ 391,094	$ 18,500
	Buffalo FPD	volunteer	0.3490	$59, 278	$ 65,000	$ 500
	Chatham FPD	blended (organized)	0.5435	$1,646,743	$ 1,768,748	$ 1,153,139
	Curran FPD	pass-through	0.2373	$43,272	$ 71,830	$ 3,000
	Dawson FPD	volunteer	0.3966	$55,419	$ 192,101	$ 1,680
	Divernon FPD	volunteer	0.3421	$108,671	$ 233,214	$ 13,940
	East Side FPD	pass-through	0.3306	$113,605	$ 122,594	$ 3,700
	Elkhart FPD	*volunteer*	*0.3004*	*$224*	*$ 178,850*	*$ 2,100*
	Illiopolis FPD	volunteer	0.1698	$49,267	$ 62,000	$ 9,450
	Island Grove FPD	volunteer	0.3150	$45,281	$ 102,354	$ 11,325
	Lake Springfield FPD	pass-through	0.2891	$100,634	$ 105,012	$ 3,000
	Loami FPD	volunteer	0.2130	$39,785	$ 106,000	$ 600
	Mechanicsburg FPD	volunteer	0.2698	$106,195	$ 125,439	$ 4,000
	New Berlin FPD	volunteer	0.3402	$92,095	$ 206,807	$ 22,275
	North Side FPD	pass-through	0.2070	$102,023	$ 118,919	$ 3,700
	Pawnee FPD	volunteer	0.4291	$256,241	$ 494,301	$ 20,500
	Pleasant Plains FPD	volunteer	0.2327	$146,196	$159,400	$ 16,750
	Riverton FPD	volunteer	0.2681	$256,748	$ 259,500	$ 5,000
	Rochester FPD	stipend/volunteer	0.2945	$489,119	$ 1,022,650	$ 154,250
	Sherman FPD	stipend/volunteer	0.3227	$383,416	$ 1,471,650	$134,750
	South Lawn FPD	pass-through	0.3325	$72,593	$ 76,962	$ 3000
	South Oak Knolls FPD	pass-through	0.2939	$151,932	$ 153,699	$ 3,000
	South Side FPD	pass-through	0.3124	$111,923	$ 132,719	$ 3,000
	Virden FPD	*volunteer*	*0.3053*	*$57,366*	*$ 322,800*	*$ 30,300*
	Waverly FPD	*volunteer*	-		*n/a*	*n/a*
	Western FPD	pass-through	0.3053	$167,470	$ 175,000	$ 3,000
	Williamsville FPD	volunteer	0.4732	$209,913	$ 372,220	-
	Woodside FPD	pass-through	0.3439	$154,047	$ 163,745	$ 3,000
	SC Rescue Squad	volunteer	n/a			
	Regional Total			**$4,995,161**	**$ 42,702,498**	**$33,531,885**
	Regional Avg (excl. SFD)		**0.3098**	**$192,121**	**$326,118**	**$66,461**
private	America Ambulance	private	n/a		n/a	n/a
	Lifestar Ambulance	private	n/a		n/a	n/a
	MedicsFirst	private	n/a		n/a	n/a

[11] Payroll and payroll taxes for firefighters and trustees, benefits (as applicable), medical expenses, and employer contribution to pension fund (as applicable) for FY2013 budget. Does not include overall liability coverage; training costs, except those incurred by payroll expenses for a training officer; or professional services, such as attorney's accountant's, or engineering fees.

[12] Athens, Elkhart, Virden, and Waverly FPDs are located primarily outside of Sangamon County, and they have been excluded from regional totals.

Preliminary Discussion of Efficiency and Effectiveness Concerns

The CEC explored fire protection and emergency medical services initially as a result of anecdotal evidence of concerns from volunteer FPDs. As EMT training & certification standards have increased and become more costly,[13] as a result of rural depopulation trends,[14] and as more rural residents work in urban areas and thereby are unavailable to respond to emergency calls, many areas are experiencing difficulties in recruiting and retaining sufficient volunteers to maintain adequate emergency response.[15] Evidence of this problem exists in some regions of Sangamon County. The CEC learned, for instance, that Chatham FPD services most of the southern portion of the county via automatic mutual aid.[16] This information was further reinforced in conversations with other area chiefs and village presidents.[17] Similarly, representatives from both the Village of Williamsville and Sherman FPD indicated that the Sherman FPD is typically a first responder to a large number of Williamsville emergency calls.[18] The CEC found that, while exceptions certainly exist, generating volunteer interest and keeping costs low are critical issues in many areas of the county, and is also a concern throughout other areas of central Illinois.[19]

The CEC received indication that most volunteer fire departments in Sangamon County generally have adequate equipment, often as a result of new equipment purchases through federal and state grant funding (see Appendix A for equipment information made available to the CEC).[20] While there are capital costs associated with maintaining and replacing depreciable equipment, the fire-fighting equipment required to meet local needs currently does not seem to be of primary concern. Coordinated regional capital equipment planning would be beneficial, but was not central to the CEC's current analysis. However, the CEC notes that all potential solutions to the volunteer personnel responsiveness concerns discussed above, should be considered in light of their potential impact on departmental ability to garner grant funding that may be contingent on department size.

The Sangamon County Rescue Squad is also a noticeable component in volunteer responsiveness regionally. At times, the Rescue Squad supplements the services of volunteer districts and the SFD, and provides specialized equipment for these purposes. Because of its relevance to regional response, the SCRS' role should be considered in conjunction with volunteerism conversations.

Conversations related to rural fire protection challenges are also linked to a broader review of fire protection services in the area, particularly since regional revenue allocation may play

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[13] CEC Interview with Phil Schumer, Chief, Chatham FPD (April 24, 2013).
[14] WMDB 31 (May 2, 2013) Rural Depopulation: How Small Town Illinois is fighting to Stay Alive," Available at: http://www.centralillinoisproud.com/story/rural-depopulation-how-small-town-illinois-is-fighting-to-stay-alive/d/story/8qGX7If9sECyz8aKK8iSIA;
[15] CEC Interview with Tom Yokley, President, Village of Williamsville (April 17, 2012); CEC Interview with Randy Rhodes, Chief, Divernon FPD (May 30, 2012).
[16] CEC Interview with Phil Schumer, Chief, Chatham FPD (April 24, 2013).
[17] CEC Interview with Randy Rhodes, Chief, Divernon FPD (May 30, 2012).
[18] CEC Interview with Randy Burge, President, Sherman Fire Protection District (August 28, 2013); CEC Interview with Tom Yokley, President, Village of Williamsville (April 17, 2012).
[19] Citizens' Efficiency Commission (October 29, 2011). "Preliminary Report: Sangamon County Municipal Leader Interviews," Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Municipal%20Leader%20Interviews%20Report.pdf.; WANDTV.com. (June 20, 2013). "Fire district in need of volunteers."
[20] Personal communication from Bill Russell, Deputy Coordinator, Sangamon County Office of Emergency Management (September 13, 2013); CEC Interview with Phil Schumer, Chief, Chatham FPD (April 24, 2013);

a role in the solution to adequate fire protection services in rural areas. The CEC found in its reviews of Foreign Fire Insurance Funding and Pass-through Fire Protection Districts that the City of Springfield's Fire Protection function has the potential to impact rural fire protection and EMS, and vice-versa. Since rural fire protection districts have the potential to generate additional revenue sources that may be meaningful in creating volunteer incentives, revenue allocation questions for all jurisdictions should not be overlooked.[21] Conversely, though, the CEC notes that local culture is typically a large component in generating volunteerism, and that solutions should be considered in light of their potential impact on community pride and volunteer culture.

The City, as a large fulltime department, has distinct concerns from those of the smaller districts. However, it also has a number of cost centers that should be reviewed carefully, some of which are related to mutual aid calls and other interaction with districts on a regional basis. Additionally, actions taken by the smaller rural departments to strengthen volunteer bases and associated services have the potential to impact the City of Springfield by either reducing the City's revenue base through reallocation of pass-through funds to other departments, or conversely by alleviating extra-jurisdictional response needs. Some of the operational cost drivers for the SFD, such as manning requirements, may therefore require review in order to ensure that adequate coverage remains available for the City in conjunction with any regional actions taken to promote volunteer responsiveness.

The Springfield Fire Department's costs are largely driven by personnel expenses, as discussed in the headcount comparisons above. A large percentage of costs result from pension contributions, three-person minimum manning requirements, and basic personnel costs.[22] To elaborate, one of the SFD's motives in maintaining relatively high staffing levels is the minimum manning requirement in the SFD's existing contract. Without a robust staffing level, contractual arrangements require substantial overtime costs, which can also create budgetary issues for the City.[23] The CEC also learned that technical rescue emergencies can lead to increased overtime costs as specially-trained personnel may need to be called in for duty in specific instances.[24] Though the CEC did not find it within its scope to fully review these concerns, historical conflict related to these arrangements, as well as the changing nature of service needs, suggest that a review of these items should begin immediately.

In summary, rather than equipment concerns, the CEC received indication throughout its work that the primary concerns in providing fire protection and emergency medical services in both rural and urban areas result from personnel difficulties. Though these difficulties take distinct forms in the different types of departments, revenue allocation plays a major role in this conversation. However, the CEC notes that the concept of providing fire and emergency medical protection on a regional basis with full-time paid staff in all areas is likely cost-prohibitive given service and taxation expectations in the region.[25] Therefore, the CEC

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[21] Citizens' Efficiency Commission (April 10, 2013). "Foreign Fire Insurance Funding Administration and Use." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Foreign%20Fire%20Insurance%20Recommendation.pdf.; Citizens' Efficiency Commission (September 25, 2013). "Evaluate Pass-Through Fire Protection Districts Served by the Springfield Fire Department." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/PassThrough%20FPD%20Recommendation-FINAL.pdf.

[22] City of Springfield FY2013 Budget; City of Springfield (November 17, 2008), "Report of the Blue Ribbon Committee on Springfield City Finances"; Stroisch, Deana (June 20, 2013), "City overtime expenses cause for concern," *The State Journal-Register.*

[23] Stroisch, Deana (June 20, 2013), "City overtime expenses cause for concern," *The State Journal-Register.*

[24] Personal communication from Bill Russell, Deputy Director, OEM (September 27, 2013).

[25] CEC Interview with Ken Fustin, Chief, Springfield Fire Department (February 1, 2012).

provided below factual support for some of the preliminary and anecdotal evidence it received, and worked to develop and address a series of alternatives.

Standards of Emergency Service & Peer Comparisons

The first concern in the CEC's analysis was developing a working understanding of what level of service ought to be expected and provided in terms of regional emergency response. One mechanism for developing these standards is to survey medical and fire protection professionals for minimum standards or benchmarks that represent accepted norms in the field. The CEC found in a set of nationwide literature that a general consensus existed that one-minute turn-out or en-route times, four-minute first-response times, and eight-minute Advanced Life Support response were the preferred standards. These standards are supported by the National Fire Protection Association's *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (NFPA 1710). These standards are acknowledged to be challenging, but are hoped for on at least 90% of calls.[26]

Similarly, the State of Iowa's Department of Public Health has researched recommended minimum standards for adoption by its counties. These standards are slightly more permissive due to the rural, disperse geography of many regions of Iowa, and may have applicability in Sangamon County. Its draft standards read:[27]

> *These standards shall take into account the total time from dispatch to arrival of the responding unit at the scene, including all dispatch intervals and driving time. Emergency medical service areas (response zones) shall be designated so that, for eighty percent of emergency responses:*
> ***The response time for BLS and CPR capable first responders does not exceed:***
> *Urban—5 minutes; Rural—15 minutes; Wilderness—as quickly as possible*
> ***The response time for an advanced life support capable responder (not functioning as the first responder) does not exceed:***
> *Urban-8 minutes; Rural-20 minutes;*
> ***The response time for an ambulance (not functioning as the first responder) does not exceed:***
> *Urban-8 minutes; Rural- 20 minutes; Wilderness—as quickly as possible*

Finally, *EMS World* professional literature notes that the American Heart Association has listed 4-6 minutes as the optimal response time for mitigating the damaging effects of cardiac arrest.[28] The CEC assumes that FPD/EMS providers in Sangamon County should attempt to target these minimum standards as nearly as possible. However, it acknowledges that, as in the state of Iowa, more rural or geographically dispersed areas will have greater difficulty in attaining these levels of service.

Another method for gauging public service expectations and determining whether Sangamon County's fire/EMS functions are satisfactory is to compare costs and service outcomes in this region with those in similar areas of the state. Sangamon County's neighbors and peers are often considered to be Champaign, McLean, Macon, and Peoria counties.

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[26] West, Gary R. (2008). *Exploring the Feasibility of Meeting NFPA 1710 Response Time Standards at Northwest Fire/Rescue District*. Available at: http://www.usfa.fema.gov/pdf/efop/efo41722.pdf.
[27] Iowa Department of Public Health, Division of Acute Disease Prevention and Emergency Response, Bureau of EMS (2007). *Iowa EMS Standards: What every Iowan can expect from Emergency Medical Services*. Available at: http://www.idph.state.ia.us/ems/common/pdf/emss_standard_final_draft_2.pdf.
[28] Ludwig, Gary G. (April 1, 2004). "EMS Response Time Standards," *EMS World*. Available at: http://www.emsworld.com/article/10324786/ems-response-time-standards.

Accordingly, the number of service providers and the collective spending of these entities as reported to the U.S. Census Bureau in the Census of Governments is reported in Table 3, below.[29]

Table 3: Preliminary Data on Comparison Jurisdictions

County Name	2010 Population	2005-2009 ACS Population Estimate	2007 Number Municipal Fire Departments	2007 Number FPDs	2007 Regional Fire Protection Spending	2007 Per Capita Regional Spending	Number NEMSIS Reporting PCR Ambulance Agencies (non-air, >4 incidents)
Sangamon	**197,465**	**194,049**	**2**	**25 (+1 Twp)**	**$ 27,517,000**	$142	**6**
Champaign	201,081	192,135	6	22	$19,555,000	$102	4
Macon	110,768	108,772	1	12	$ 15,349,000	$141	8
McLean	169,572	163,686	2	17	$ 19,331,000	$118	n/a
Peoria	186,494	183,474	6	10 (+ 1 Twp)	$ 24,919,000	$136	n/a

Based on this information, it is evident that Sangamon County, while second in population, has the highest fire protection spending among its peers. Moreover, it has the second greatest number of local governments providing fire/EMS services of this group of counties. This Census of Governments data has some limitations, as it is somewhat dated and is self-reported by the units of government involved. However, it provides the best available standardized comparison across the region on a peer-to-peer basis. It is also important to note that units of government and spending data do not provide a full inter-jurisdictional comparison, because they do not demonstrate the service outcomes associated with this spending.

In a preliminary attempt to compare Sangamon County to peer counties in terms of response outcomes, the CEC accessed data from the National EMS Information System (NEMSIS) database, a national repository which records many relevant data collected through ambulance transport entities. While NEMSIS collects a variety of data related to patient health concerns, the CEC focused on: the elapsed time from call dispatch until an ambulance agency was en route to the incident scene, the elapsed time from when an agency was en route until it was on the scene, and the total time from dispatch to arrival on scene. The CEC considered this information for every incident based upon county of incident origin for a period of two calendar years (2011-2012).

There are several important limitations to the NEMSIS data that informed the CEC's consideration of the aggregate average response time figures. The first is that the completion and accuracy of NEMSIS data is dependent upon self-reporting accuracy of the ambulance agencies involved. For example, MedicsFirst is one of the primary ambulance transport service providers in Sangamon County, but had no reported data in the NEMSIS database for the CEC's use. Even assuming data completion and accuracy, the NEMSIS database excludes most non-transporting agencies. These data are therefore more relevant for the EMS transport portion of the CEC's analysis, but are beneficial in that they provide a standardized opportunity to compare service across counties preliminarily.

[29] U.S. Bureau of the Census, 2007 Census of Governments, Local Government Finance data. For more information, see http://www.census.gov//govs/cog/. Although this information is somewhat dated, the Census of Governments occurs once every five years, and 2012 data at the individual local government level had not yet been released at the writing of the CEC's recommendation.

Based on NEMSIS information (Table 4), ambulance first responders in Sangamon County appear to be providing service comparable to their peer agencies. Private and public transport service providers in Macon and Champaign Counties (data for McLean and Peoria counties were unavailable) have slightly longer average elapsed times than those in Sangamon County. This distinction is sharper for Macon County, where time from dispatch to arrival on scene is, on average, nearly eight minutes. It is significant that Sangamon County's dispatch-to-en route times are the lowest among its peers on average. Complete breakdowns of Champaign and Macon County's data are provided in Appendix B.

In contrast, examining en route-to-on scene times, Sangamon County has the highest average elapsed times. However, Sangamon County has a larger land mass as compared to the two peers for which data were available. It is therefore important to note that longer distance transports for some of the smaller agencies in all of these counties may be skewing averages upward, and NEMSIS data should be regarded as only one piece of a complex puzzle.

Table 4: Ambulance Transport Service Incident Times 2011-2012,
By Incident County, All Incidents with valid Zip Code/County (hh:mm:ss)

	Ambulance Agency	Average Time from Dispatch to Enroute	Average Time from Enroute to On Scene	Average Time from Dispatch to On Scene	Number of Incidents over Two-Year Period
Sangamon County	AMERICA AMBULANCE INC	0:00:07	0:06:56	0:07:03	9,572
	AUBURN AREA AMBULANCE	0:05:30	0:02:30	0:08:00	4
	CHATHAM FIRE & EMS	0:01:34	0:06:24	0:07:59	1,065
	LIFESTAR AMBULANCE SERVICE INC	0:00:21	0:05:48	0:06:09	12,597
	PAWNEE FIRE PROT DIST	0:03:32	0:02:40	0:06:12	258
	WAVERLY VOLUNTEER RESCUE SQUAD	0:05:42	0:05:22	0:11:03	36
	Sangamon County Total:	**0:00:21**	**0:06:15**	**0:06:37**	**23,532**
Peers	**Macon County Total:**	**0:01:36**	**0:06:11**	**0:07:47**	**16,103**
	Champaign County Total:	**0:00:51**	**0:05:43**	**0:06:34**	**26,169**

Comparability of service levels to minimum medical standards varies across different providers in Sangamon County. Private ambulance services are the only entities whose average en-route times are under the one-minute threshold indicated in the literature, although Chatham FPD's ambulance service comes close to meeting this standard. The total dispatch to en route time is, on average, under the 8-minute threshold for all reporting transport agencies except Waverly Volunteer Rescue Squad. Again, it should be noted that Sangamon County data exclude MedicsFirst ambulance services, as MedicsFirst data has not been reported.

Overall, NEMSIS data suggest that in patient transport situations, Sangamon County does not receive significantly different service than that received by residents of other jurisdictions. Transport agencies, where data are available, appear to have faster average response times where they are responding to more calls and/or where they are limited to a smaller

geographical range. In examining total dispatch-to-on scene times, Sangamon County falls between its two peers. However, it far exceeds Champaign County in cost, and has a smaller population basis for which to provide service.

Regional Fire Protection/EMS Times

While the NEMSIS information suggests that the level of service provided by patient transport reporting agencies is adequate, many calls in Sangamon County are not answered by reporting PCR first responders. The CEC therefore endeavored to corroborate NEMSIS data with an exploration of two additional data sources.

The first of these resources was the Sangamon County Centralized Dispatch System (SCCDS or E911). The E911 system was able to provide call response time data for the Springfield Fire Department and Chatham FPD. However, the other volunteer FPDs in the county do not have automated data collection systems in their vehicles like those of SFD and Chatham FPD, and therefore the SCCDS system is not set up to accommodate the collection of these data in an accessible format.[30] The CEC utilized these data, however, to reach a better understanding of the locations of Springfield and Chatham's calls for service.

The second data resource was the Illinois State Fire Marshall's National Fire Incident Reporting System (NFIRS).[31] Although NFIRS data is based on self-reporting from the fire protection districts and therefore may lack precision, the CEC determined that it provided the best single cross-district point of comparison because all FPDs, whether or not they have automated in-vehicle Mobile Data Computers, report to this database on their call times and dispositions. Other limitations of the data received and analyzed by the CEC include the fact that only the Dispatch and On Scene times were recorded, as opposed to the En Route time provided by the NEMSIS dataset.

In spite of these limitations, the NFIRS data provides significant capacity to examine the comparative services for the various fire protection districts in the County over the two-year period form 2011-2012. Table 5, below, provides average response times by district as a preliminary overview. It includes all types of calls, such as weather calls, good intent calls, explosions, etc. However, to provide a more accurate picture of the CEC's intended research question, it excludes calls for service on incidents that occurred outside of Sangamon County, as well as false calls and calls cancelled en route.

[30] CEC Interview with Ken Davis, Information Systems Manger, SCCDS (June 21, 2013).; The CEC's Public Safety Committee, upon preliminary review, suggest that this information may be of benefit for SCCDS to consider collecting. See Citizens'' Efficiency Commission (October 23, 2013). "E911 Data Collection Protocols." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/E911%20Data%20Collection%20Recommendation-Final.pdf

[31] For more information, see https://www.nfirs.fema.gov/.

Table 5: Overview of Call Time Data for Sangamon County FPD/FDs (2011-2012)[32]

FPD	Call Count (2-Year)	Average Elapsed Time Dispatch to Arrival	Standard Deviation	Maximum Time
AUBURN FPD	542	0:06:20	0:03:27	0:31:00
BUFFALO FPD	367	0:10:05	0:06:17	1:16:00
CHATHAM FPD	2,153	0:07:45	0:07:14	4:06:00
DAWSON FPD	221	0:09:03	0:04:46	0:26:00
DIVERNON FPD	295	0:08:36	0:05:56	0:29:00
ILLIOPOLIS FPD	198	0:07:45	0:03:23	0:21:00
LOAMI FPD	224	0:06:43	0:04:54	0:26:00
MECHANICSBURG FPD	139	0:08:50	0:06:04	0:29:00
NEW BERLIN-ISLAND GROVE FPD	290	0:07:34	0:03:27	0:19:00
PAWNEE FPD	615	0:07:00	0:05:01	0:40:00
PLEASANT PLAINS FPD	46	0:11:43	0:05:46	0:30:00
RIVERTON AREA FPD	423	0:06:46	0:03:58	0:31:00
ROCHESTER FPD	664	0:09:20	0:04:39	0:37:00
SHERMAN FPD	599	0:08:54	0:04:38	0:33:00
SPRINGFIELD FD	23,959	0:07:05	0:05:01	3:11:00
WILLIAMSVILLE FPD	277	0:09:15	0:14:59	3:49:00
TOTAL	**31,012**	**0:07:18**		

Table 5 demonstrates that a number of Sangamon County departments do not attain the under 10 minutes response times that are preferred in nationwide standards when viewed in light of overall average call times.[33] It also confirms the intuitive assumption that districts responding in rural areas have longer average elapsed times. The CEC finds it reasonable to assume that, to an extent, service expectations vary across these districts as well. Residents in more rural districts, for example, are presumably aware that they live in further proximity from emergency medical services and are provided service by volunteer departments.

The CEC notes that some districts' averages are increased as a result of Fire Departments traveling outside of their own district in order to respond to neighboring calls via mutual aid agreements under MABAS. Therefore, the data is presented by incident location in Appendix C to provide additional information.

Emergency Medical versus Fire Protection Services

The primary variable involved in ensuring efficient and effective emergency response, as discussed above, is that of personnel. In exploring personnel concerns, the CEC found that training represents one of the chief hurdles in ensuring that the necessary volume of volunteers is available to respond to emergency calls. Training is also critical for ensuring firefighter safety. Local FPDs report that training requirements, particularly for EMS, have increased in recent years and become too time-consuming or costly for some volunteers in

[32] The CEC used EMS standards described above, as well as National Fire Protection Association standards, to evaluate response times. For more information on national standards, see http://www.nfpa.org/.; Due to reporting anomalies that the CEC believed to be skewing data, five calls for incidents such as brush fires, in which response times were over 10 hours were removed from the sample. Some of the longer maximum times reported above may also be the result of reporting anomalies.

[33] Since average or mean times have the tendency to be skewed by outliers, the standard deviation of calls (a measure of the data's variance from the mean), as well as maximum times, are also presented in the data. Moreover, Appendix C also divides provides call subsets, dividing calls by disposition (fire, EMS, other) to provide a more accurate picture of the emergency response functions.

rural areas.[34] The declining pool of volunteers exacerbates this problem, as many rural residents now work in the urbanized area during daytime hours. FPDs report, however, that typically the lower volume of fire protection calls and the less costly training requirements for fire-fighting, as opposed to EMS, ensure that volunteers are more readily available to respond to fire emergencies.

To elaborate on the rigorous requirements for basic EMT licensure, most states require approximately six months of training, with between 120 and 150 hours of coursework. There is also a certification test typically involved.[35] Illinois requires a state-level test rather than the National Registry Exam, substantial documentation, and fees accompanying the application.[36] Several FPD officials and members in the region indicated to the CEC that these requirements are becoming time-prohibitive for recruiting the volume of qualified members that FPDs had in the past.

In order to test the assumptions related to EMS versus fire calls and explore the distinction between fire and EMS services, the CEC examined call dispositions in comparison to average response times. Generally, the CEC found that responses to EMS calls occur more quickly than responses to fire calls (Appendix D). This is in contrast to anecdotal evidence relayed by a number of volunteer FPDs, which indicated to the CEC that fire calls, which occur more infrequently, typically spur robust volunteer responsiveness, whereas the large number of EMS calls that occur can lead to reduced willingness or capacity on the part of volunteers to respond to every call.

The CEC expects that a number of factors could be involved in the differences between EMS and fire response time demonstrated in the data. First, the volume of EMS calls would reduce the potential for outliers to pull averages upward. The maximum times and standard deviations presented alongside the means demonstrate that this is likely for some districts. Secondly, for fire situations, more equipment and manpower are needed, so it may take longer for volunteer units to assemble and arrive on scene. Finally, there is often a more stringent time-based motivation for responsiveness in EMS calls due to the potential life-or-death impacts of meeting time thresholds in these situations, as opposed to the many fire-related calls which in many instances impact only property.

Given the significantly lower volume of fire-related calls, the CEC finds it important to consider the potentially distinct equipment and training needs for these types of situations. EMS calls typically do not require full-sized fire response vehicles, but can be addressed with smaller, faster, more efficient vehicles. The City of Springfield took initial, appropriate steps in this direction in recent years by acquiring smaller medical-only vehicles, or "box" trucks, and other districts could consider moving in this direction. If this were the case, long-term costs to purchase and maintain fire equipment for each district could be reduced.

Additionally, if EMS and fire calls were handled distinctly, volunteers would not have to undergo both types of training in order to be able to respond. This might increase the potential for responsiveness to both types of calls, particularly in a situation where volunteers had designated on-call hours or received stipends, options which will be explored in the "Best Practices" section below. Although cross-training volunteers to handle all functions has significant benefits, it is also noteworthy that in certain models, volunteers can be trained as first responders who go immediately to a scene with personal medical/first aid equipment in order to stabilize a patient until a transport vehicle can arrive. This is the model currently in

[34] CEC Interview with Phil Schumer, Chief, Chatham FPD (April 24, 2013).
[35] http://www.ems1.com/careers/articles/1058465-What-are-the-requirements-to-be-a-paramedic/
[36] http://www.emt-national-training.com/illinois-emt.php

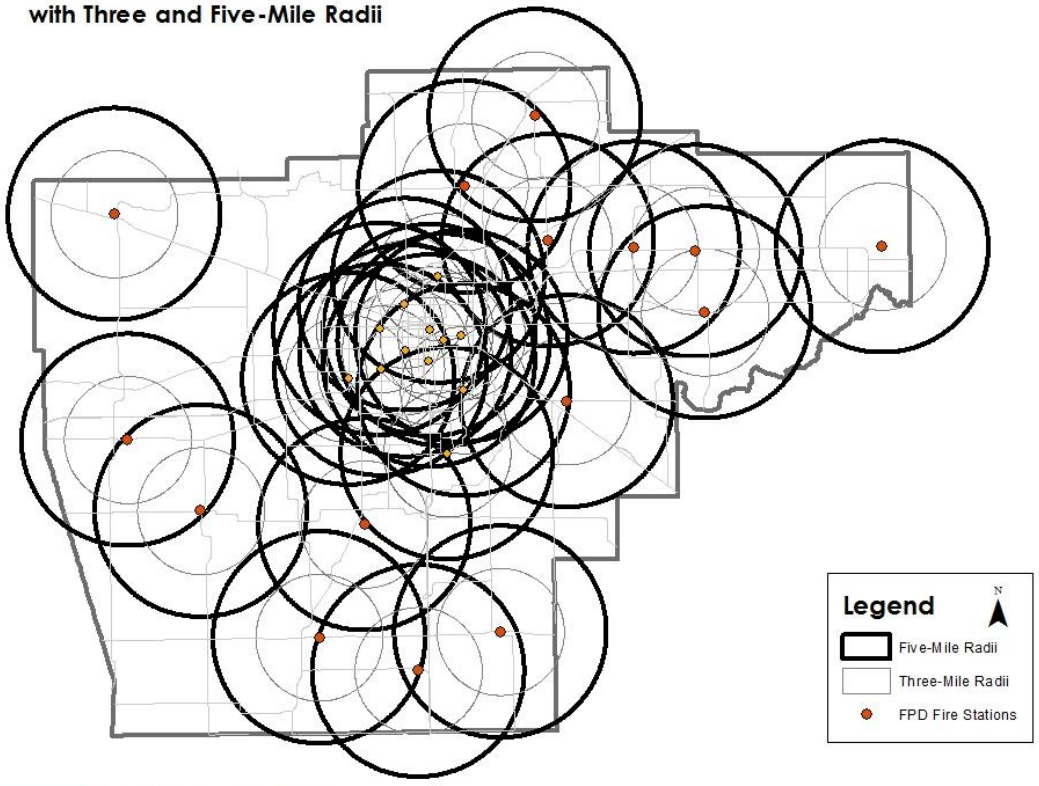
place for the Sangamon County Rescue Squad, and could be explored further for expanded use in the region as a low-cost option to bolster responsiveness.

Geographic Considerations

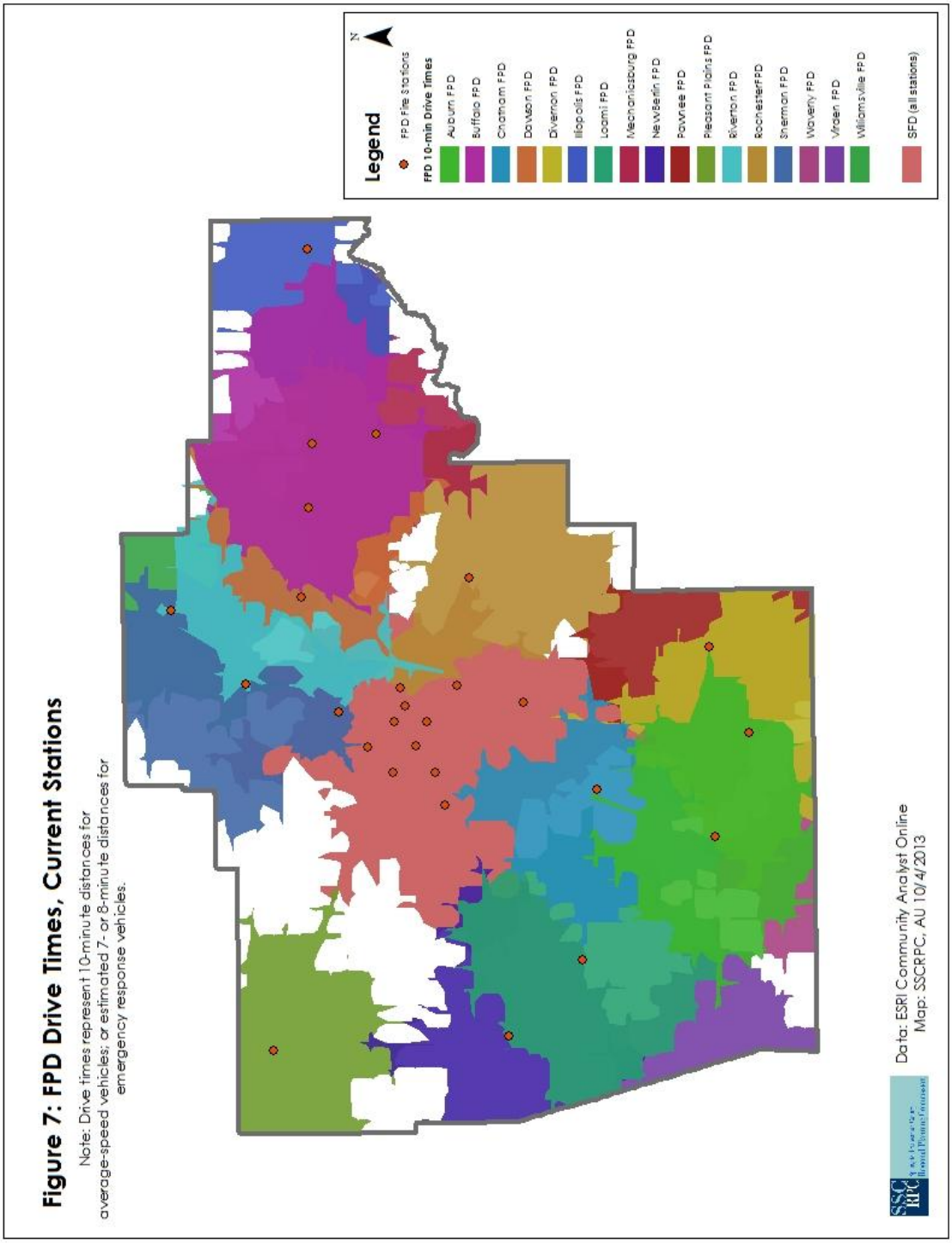
As demonstrated in the time differences between rural and urban areas in Table 5, above, the FPD call data suggests the importance of geographic considerations to ensuring that Fire/EMS services are provided in a timely fashion. As a preliminary overview of these geographic considerations, the CEC constructed the map below, which depicts fire stations of the rural FPDs and SFD that are located within Sangamon county, as well as three- and five-mile radii from these stations (Figure 6).

The distance radii map in Figure 6 suggests that there is considerable overlap in some of the station ranges for FPDs, particularly in the northeast corner of the county and the southern portion of the county. Based upon this information, the CEC next turned to driving distances, the secondary variable that, alongside availability of personnel, has greatest impact to influence the provision of fire/EMS services. Driving distances from the stations in use are essential to ensuring that responses can be provided in a timely fashion. Especially in the western portion of the county, the population is spread across a highly dispersed geography. Figure 7, below, demonstrates overlap in drive times similar to the distance radii map above, and again indicates that there is more minimal coverage in the northwest portion of the county, especially if Springfield Fire Department's western fire houses were excluded from consideration. Figure 7 has the SFD combined drive times for all houses included as a map layer, since drive times for SFD houses overlap substantially.[37]

Figure 6: FPD/SFD Stations with Three and Five-Mile Radii



In reviewing drive times, the CEC notes that, historically, the existing fire house locations most likely would not have generated this much overlap in drive time ranges, because of the more incomplete road network than existed in the past. However, with a more complete transportation network, a number of the stations' driving distance patterns partially overlap, and some almost completely intersect. Any proposed improvements to fire protection and EMS services across the region should take these distances into account and consider the potential for more efficient allocation of resources across the county.



Cross-jurisdictional Responsiveness

Alongside this geographic overlap, many Fire Protection Districts in Sangamon County already respond to calls outside of their own jurisdictions frequently. This can occur on an automatic basis in accordance with mutual aid protocols developed by the fire protection district chiefs and provided to the E911 Centralized Dispatch System, or can result from non-responsiveness on the part of the dedicated primary department. Table 8, below, lists the percentage of calls for each responding district that occurred within its own geographic territory. A lower percentage indicates that fire/EMS services are being provided by district members outside of their own jurisdiction more regularly.

As a whole, the data presented in Table 8 suggest that a number of responding FPDs are traveling outside of their own districts for a considerable volume of calls. Those districts with higher in-district percentages in Table 8 are traveling to outside calls least. Those districts with the lowest in-district calls in Table 8 have demonstrated the highest capacity to travel to calls outside of their home district. Again, this may be due to mutual aid protocols or non-responsiveness on the part of neighbors.[38] Appendix C also provides additional detail on the locations in which each fire protection district responded. Both tables exclude cancelled calls, false alarm calls, calls outside of Sangamon County, and the calls for which a geographic location could not be identified. Conversely, some Fire Protection Districts are frequently the recipient of services from the departments of other FPDs. Table 9, below, shows the number of incidents within each district that required or received faster service from a neighboring FPD.

This information demonstrates the mutual aid and cross-jurisdictional responsiveness occurring in the county, and confirms many of the anecdotes shared by FPD representatives. Many jurisdictions are already responding to one another's calls. For instance, in confirmation of indications from its leaders, Chatham FPD appears to respond to 93-94% of the calls in its own territory, but additionally to respond to calls outside of its own territory for 25-26% of its total call volume. Sherman and New Berlin also respond to a relatively high percentage of calls outside of their own jurisdiction. Although the districts in the Tri-City area are also among those with high rates of response in neighboring districts, it appears that Dawson, Buffalo, and Mechanicsburg's call sharing occurs within their own

[38] There are some limitations to the data used to construct these tables due to incomplete call location information. Due to incomplete address data reporting (i.e., "Route 104" with no additional geographical identifiers, a number of incidents (approximately 4,209) could not be matched to a specific geographic location. This is particularly likely to affect areas where a number of stations are in close proximity, such as the Buffalo-Dawson-Mechanicsburg stretch of Interstate 72. These incidents represent approximately 11% of the total incident data, but a smaller percentage when cancelled calls are excluded. The CEC worked to ensure that the data were not systematically skewed by these exclusions, as no responding district has more that 20% of its total calls excluded, and most have calls excluded at a 10-15% range, and has reasonable confidence that the data presented below are valid and reliable. In order to minimize the number of data exclusions required in the process of geocoding address data to a specific location, the CEC and its research staff hand-matched a number of incidents to specific geographical locations. At times, these matches were estimates based on address locations. These estimates occurred especially for incidents where no address number was recorded, such as "Interstate 55, Divernon." Where mile markers were available, addresses were matched as nearly as possible. Where no additional identifying information was provided, addresses were distributed randomly along the section of the identified road located within the coded responding FPD. Estimated calls are included with non-outlined symbols in the call dispersion map on page x, below. With regard to the available data, it should also be noted that the involvement of the Sangamon County Rescue Squad is not recorded by the State Fire Marshall as part of the NFIRS dataset.

region, and that no one jurisdiction among the three is significantly stronger than the others in terms of extra-jurisdictional responsiveness. Finally, the information in these two tables is presented visually in Figure 10, below. It is important to note that symbols without black outlines are based on estimated call locations based on limited location information, and are only approximations as discussed above. Calls with outlines are actual locations, and the map paints a representative picture of which jurisdictions are responding to calls in which districts.

Table 8: FPD Responsiveness Outside of Home District (2011-2012)

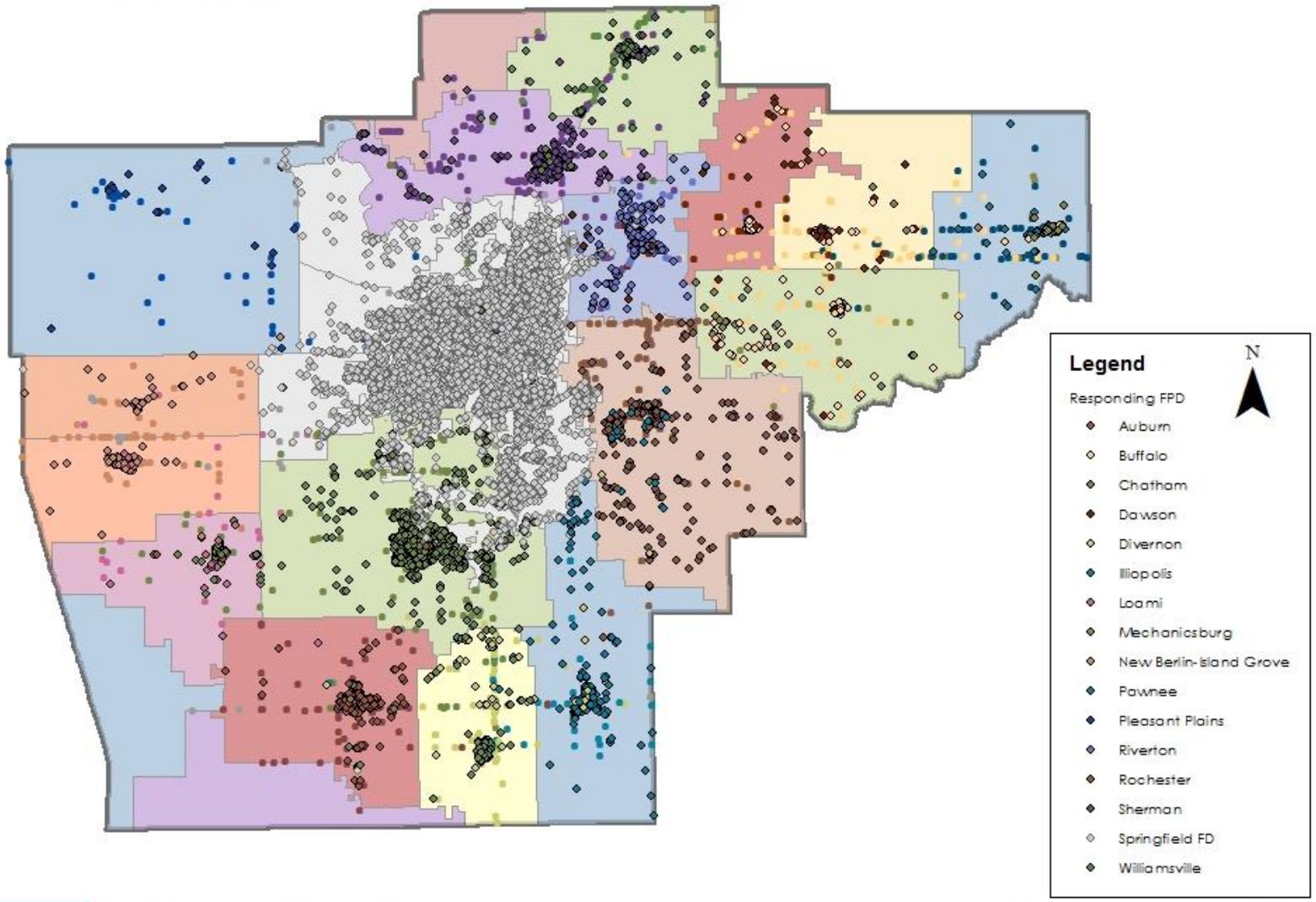
Fire/EMS Dept or District (Responding)	Total Calls 2011	Percentage of Calls Located within Home District-2011	Total Calls 2012	Percentage of Calls Located within Home District- 2012
Auburn FPD	302	99 %	217	98 %
Buffalo FPD	160	40 %	169	30 %
Chatham FPD	905	74 %	854	75 %
Dawson FPD	94	50 %	95	56 %
Divernon FPD	132	91 %	114	96 %
Illiopolis FPD	96	94 %	67	94 %
Loami FPD	105	95 %	104	91 %
Mechanicsburg FPD	118	61 %	-	
New Berlin FPD	38	87 %	30	77 %
Pawnee FPD	297	95 %	256	94 %
Pleasant Plains FPD	21	90 %	16	100 %
Riverton FPD	85	~100 %	250	94 %
Rochester FPD	328	98 %	250	99 %
Sherman FPD	282	87 %	238	87 %
Springfield FD	10,523	~100 %	9,216	99 %
Williamsville FPD	136	89 %	108	96 %

Table 9: FPD Service by Neighboring Departments

Fire/EMS District (Incident Location)	Total Calls 2011	Percentage of Calls Answered by Outside Department- 2011	Total Calls 2012	Percentage of Calls Answered by Outside Department- 2012
Auburn FPD	309	3 %	221	4 %
Buffalo FPD	130	51 %	84	39 %
Chatham FPD	706	6 %	688	7 %
Dawson FPD	73	36 %	104	49 %
Divernon FPD	197	39 %	171	36 %
Illiopolis FPD	118	24 %	67	6 %
Loami FPD	156	36 %	159	40 %
Mechanicsburg FPD	135	47 %	75	100 %
New Berlin FPD	38	13 %	32	28 %
Pawnee FPD	293	4 %	247	2 %
Pleasant Plains FPD	26	27 %	18	11 %
Riverton FPD	102	17 %	243	3 %
Rochester FPD	334	4 %	263	6 %
Sherman FPD	257	5 %	217	4 %
Springfield FD	10,598	1 %	9,260	1 %
Williamsville FPD	150	19 %	135	23 %

Figure 10: Sangamon County Fire/EMS Responses

2011-2012 Data,
By Location and Responding FPD



Data: NFIRS, State Fire Marshall's Office
Map: SSCRPC, AU 9/30/2013

Legend Note: Actual Call Locations Symbolized with Outline;
Estimated Call Locations Symbolized without Outline

Given this extensive body of evidence related to response times, geographic overlap, and cross-jurisdictional responsiveness, the CEC found it feasible to consider the anecdotal evidence it had received related to volunteerism issues confirmed. As a result of this confirmation of a need to address regional emergency response effectiveness, the CEC began to explore alternatives related to incentivizing needed volunteer services in the face of scarce resources.

Best Practices

As tight budgets and declining volunteerism are not issues unique to Sangamon County, many FPDs throughout the nation are considering options for augmenting volunteer forces, reducing costs generally, and engaging in other best practices.

Canton, Georgia's Fire Department, for instance, has converted its fire inspection vehicles to hybrid, compact vehicles to generate fuel savings for inspections, which alongside other budget-reduction measures is expected to help generate savings of $800,000 annually.[39] As the CEC has previously noted, downsizing vehicles or exploring alternative fuel use can benefit fire departments and should continue to be explored in local fire departments, most notably the SFD.[40]

Other cost-reduction mechanisms have included the creation of blended forces with both volunteers and paid staff. This model is not dissimilar to the one currently in use in the Village of Chatham. The Woonsocket Fire Department in Rhode Island is in the process of studying the use of a blended on-call volunteer system to augment their exiting paid forces. These efforts have, however, been delayed by a lawsuit filed by the exiting firefighter's union in Woonsocket.[41]

Conversely, some departments that have historically been all-volunteer are considering supplementing their volunteer forces with stipends. North Escambia County, Florida, provides such an example of a department that has historically explored this transition, and the CEC found that throughout the nation, stipends differ dramatically, with examples as low as $2.50 per call and has high as over $500 per month in existence.[42]

Another town, North Hempstead, New York, conducted a baseline analysis of its EMS services, noting similar concerns about EMS volunteer responsiveness to those observed by the CEC.[43] Though this study laid only a preliminary groundwork for future analysis, North

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[39] The Cherokee Ledger-News (October 17, 2012). "Canton Fire goes hybrid." Available at: http://www.ledgernews.com/news/weekly_news/canton-fire-goes-hybrid/image_a0351408-1853-11e2-a9d3-0019bb30f31a.html.

[40] Citizens' Efficiency Commission (September 12, 2012). "Positive Local Efforts Applauded by the Citizens' Efficiency Commission." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Positive%20Local%20Efforts%20Document.pdf.; Citizens' Efficiency Commission (September 25, 2013). "Expand Existing Use of Alternative Fuels in Local Government Fleets." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Alternative%20Fuels%20Recommendation.pdf.

[41] EfficientGov.com (September 30, 2013). "City Switching to On-Call Volunteer FD." Available at: http://efficientgov.com/blog/2013/09/30/city-switching-call-volunteer-fd/

[42] NorthEscambia.com (November 13, 2008). "County Considers Stipend Payments for Volunteer Firefighters." Available at: http://www.northescambia.com/2008/11/county-considers-stipend-payments-for-volunteer-firefighters.

[43] Center for Governmental Research (2010). "Baseline Review of Ambulance Services and EMS in the

Hempstead noted that a blended force was currently effective in providing basic services. A later study in the same area developed an array of incentives available for volunteer firefighters, including tax abatements, stipends, and increased training benefits.[44]

Finally, some fire departments are engaged in more traditional consolidation conversations in pursuit of cost savings and improved volunteerism. The Hamelin, Walker, and Morton Fire Districts in New York State have considered consolidation, noting that "a consolidated district may offer opportunities to reduce the number of apparatus over time and avoid future capital purchases in some cases."[45] Their consolidation analysis suggests that, because of distinct cultures among the districts, multiple chief positions in a combined district would be of benefit. The study also indicated that similarities in operations would reduce consolidation difficulties, and the consolidation would be beneficial in terms of opportunities for combined training.

Alternatives

Several options are available on a region-wide basis related to the existing model for fire/EMS services. In considering these alternatives, the CEC attempted to take into account the existence of several tiers or types of districts, including those without apparatus, those with varying unpaid coverage, and those with stipends or blended forces, in addition to the City of Springfield's fully paid, organized force.

The CEC also included in its considerations the importance of geographical proximity, adequate apparatus, and appropriate personnel for providing fire/EMS services. Finally, it attempted to include constituent expectations as a factor informing the available alternatives. The alternatives presented below are not mutually exclusive in every case, but can be considered as conceptually distinct components that could play into a regional solution. These alternatives include:

Alternative 1—*Maintain the status quo.*

In Alternative 1, FPDs and fire/EMS service providers in Sangamon County would continue to exist in their current form, and would respond to calls and purchase equipment on an individualized basis. Under this arrangement, the SCRS and SFD would also continue to supplement volunteer forces and provide specialized services where needed.

The CEC acknowledges that the status quo is an important option for its consideration, because consolidating districts may not always lead to increased efficiency, particularly when labor relations considerations are triggered by the formation of a larger or paid department than those currently staffed by the volunteer agencies. Moreover, fire protection districts in Sangamon County have established channels of communication and, except for select personality-based parochialism, appear to the CEC to have a willingness to undertake cooperation and assist one another in emergency situations.

Town of North Hempstead, NY." Available at: http://www.dos.ny.gov/lg/publications/LGEProjectReports/2006/North%20Hempstead%20Baseline%20Report%20-%20Jan%202010.pdf

[44] Center for Governmental Research (2010). "A Review of Options for Ambulance Services in the Town of North Hempstead." Available at: http://www.cgr.org/reports/10_r-1620_northhempsteadoptionsreport.pdf.

[45] Sittig, Scott (2011). "Hamlin, Morton, Walker Fire District Consolidation Study: Baseline Review and Analysis of Options." *Center for Governmental Research.* Available at: http://www.cgr.org/reports/11_R-1662_HMWFinalReport.pdf

However, the CEC also notes that the current service arrangement appears to be unsustainable based on the difficulties in generating daytime volunteer responses. It appears that the status quo leads to response time difficulties and tax subsidization of some departments by others (Tables 8 & 9). In this situation, the abundance of distinct sets of apparatus in the many departments cannot currently be fully utilized due to minimal volunteer capacity and may be unnecessary in their current geographic proximity.

Finally, the status quo fails to address the difficulties with SFD costs. Springfield will likely continue under the status quo to help supplement calls outside their district with a department and operation that are comparatively costly, leading to high regional costs due to SFD-related factors, described above, as well. The CEC expects that for the SFD and for many other FPDs, costs will continue to rise in the future, as personnel and pension burdens increase.

Alternative 2—*Increase cooperation on an ad hoc, gradual basis via intergovernmental agreements or select consolidations within the existing framework for fire/EMS service provision.*

This arrangement reflects what is likely to occur over time if no alternatives are explored. Currently, districts that have more robust volunteer bases are beginning to respond to calls outside of their districts, at times following auto-mutual aid protocols, and at times following repeated non-responses to pages from the E911 Dispatch System. Alternative 2 represents a continuation of these activities without additional regional coordination and oversight. Districts could review mutual aid protocols, discuss the best allocation of equipment among their departments, and consider consolidation when it proves necessary or cost-effective on the basis of declining resources and volunteerism.

For the taxpayers in these larger districts, this arrangement seems untenable in the long-term, particularly if the need for out-of-district aid increases. In this case, responses within the taxpayers own district could potentially become inhibited due to the amount of time and resource being expended by departments outside of their own territories. For example, if a department is in a neighboring district, its ability to respond to its own residents' calls in a timely fashion could be inhibited. It seems probably to the CEC that districts would consider consolidations or intergovernmental agreements between districts in order to ensure that cost burdens are being equitably distributed among the geographical areas currently being charged distinct tax levies, but in practice being covered by a single district.

This alternative would not seriously contemplate reallocation of resources on a regional manner, nor would it systematically address specialized functions or need for improved or assured responsiveness on the part of some districts. Moreover, it does not address base assumptions about the level of cost necessary to provide service in these districts, but instead assumes that existing expenses are legitimate and should be equally shared. This is a limitation in light of the evidence that there are some internal mechanisms for reducing and containing costs that jurisdictions can and should undertake, such as reduced manning requirements for EMS calls in Springfield or reevaluation of vehicle size and response protocols.

Alternative 3—*Improve coordination of resources within the existing jurisdictional structure for fire/EMS services, particularly in light of trends toward increased emergency medical service needs.*

This alternative takes a unique approach to the goal of regional efficiency and effectiveness in emergency response by emphasizing the distinction between EMS and Fire Protection volunteers. As calls are increasingly oriented toward emergency medical needs rather than fire protection needs, local jurisdictions may be able to work more efficiently within their existing jurisdictional lines by coordinating with others and intentionally managing their resource allocation. Several tactics could be examined toward this goal. For example, volunteer fire departments could coordinate and potentially reduce the number of fire response apparatus purchased across their various jurisdictions in favor of purchasing ambulances or smaller medical response vehicles instead. The SFD and others could review its protocols related to the number and type of trucks that respond to distinct types of calls. Regional collaboration on special equipment needs could lead to recognition that a single, specialized regional body like the SCRS could handle unique equipment for the entire county.

This alternative could also include new management structures or training subsidization for more medical responders in individual districts as an alternative to the traditional volunteer fire-fighter recruitment model. For example, an increased use of the Sangamon County Rescue Squad's volunteer model on a region-wide basis, could supplement current volunteer response. Fire protection districts could provide their emergency-only responders with first response "jump kits" to be carried at all on-call times, thereby eliminating the need for responders to travel to stations unless a fire situation occurred.

While it stops short of organizational restructuring, this alternative encourages local FPDs to think creatively about alternative solutions to changing problems. Since regional call data have never been comprehensively examined in the past, the CEC's data collection process allows FPDs new and unique tools for conducting such an analysis. This model has potential to eliminate inefficiencies by disbanding some unnecessary fire protection equipment and by pursuing any number of the options discussed to increase EMS responsiveness.

Alternative 4—*Increase revenue base of select districts through consolidation and Foreign Fire Insurance Funding, in order to provide incentives that bolster volunteer responsiveness.*

Building upon the intentional coordination and review described in Alternative 3, this alternative works to alleviate the resource disparities in rural districts and mitigate the difficulties of generating volunteer coverage by expanding the revenue and geographic bases of operation for select FPDs. It also works to institutionalize and organize the existing patterns of extra-jurisdictional responsiveness that are already occurring in the various regions of the county. Under Alternative 4, rural districts could examine their current patterns of cooperation and consolidate where appropriate. This would allow an expanded revenue base for the combined FPDs, from which they could more intentionally navigate an exploration of providing volunteer incentives and improving oversight and management of medical response protocols.

As has been discussed in prior CEC recommendations, some revenue-generating options are available to local fire protection districts that are not being fully utilized.[46] With increases in revenue from contracting with certain pass-through FPDs and levying and collecting FFI

[46] Citizens' Efficiency Commission (September 25, 2013) "Pass-through Fire Protection Districts." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/PassThrough%20FPD%20Recommendation-FINAL.pdf.; and Citizens' Efficiency Commission (April 10, 2013). "Foreign Fire Insurance Funding Administration and Use." Available at: http://www.co.sangamon.il.us/Departments/RegionalPlanning/documents/CEC/Foreign%20Fire%20Insurance%20Recommendation.pdf

funds, rural departments could develop a system in which daytime stipends are provided for volunteers in some departments. This would alleviate the need for volunteers to travel first to their station to access equipment and then to the scene of the emergency, by ensuring that a minimal number of volunteers would be available as primary responders at the station.

The alternative would also eliminate the uncertainty and inconsistency that currently exists surrounding volunteer availability. Depending upon the amount of revenue ultimately generated through FFIF and the decisions of fire protection boards in those districts that currently do not maintain apparatus, a blended force in the Chatham FPD model could also be explored under Alternative 4. In this arrangement, it is unlikely that all districts would acquire adequate additional revenues to strengthen their forces. Furthermore, the CEC considers it unnecessary given the geographical proximity of the current departments and drive time and equipment information discussed above.

It is most likely that under Alternative 4 several of the stronger FPDs currently servicing calls outside of their district that have adequate internal and external capacity, could be retained, with other districts being consolidated into these districts. Using the revenues from the consolidating districts, as well as levying for FFIF, would bolster these stronger districts with an influx of revenue that would allow them to explore providing stipends for on-call or on-site volunteers, subsidizing training as discussed in Alternative 3, created blended paid-volunteer departments, or exploring other options for increasing responsiveness without the substantial costs of full-time paid department. The CEC acknowledges that there are geographic limitations to FPDs' ability to provide services with existing resources. FPDs should carefully consider their potential geographic scope of service and potential changes in district liability and in residents' homeowners insurance policies that may result from changes in structure. However, even in light of these structural changes, Alternative 4 could strength the intentional management of volunteers and responsiveness in the region, while acknowledging the differences in service expectations among urban and rural regions. The alternative therefore strives to explore incentives that maintain the volunteer character of the rural districts.

Alternative 5—*Consolidate rural districts into a single FPD and urban areas into a single FPD.*

This alternative, although similar to Alternative 4, goes beyond the selection of specific districts on a regional basis to consolidate, and combines all rural districts into a single unit. Although some administrative costs might be reduced through such an effort, these costs are already low in rural districts. The CEC cautions that the amount of added confusion, political backlash, and operational challenges associated with reducing chain of command to only two on a region-wide basis may make this alternative less fruitful than Alternative 4, which instead examines the region to systematically combine departments in a fashion that follows existing patterns of extra-jurisdictional response. Alternative 5 would also reduce local control to an extent that may be detrimental in generating volunteer responsiveness or may harm local pride in ownership or departmental culture. Finally, the CEC has concerns that a regional rural department may ultimately lead to a blended force or paid force of the size that would dramatically increase costs through unionization or increased overhead needed to administer a force of this size.

Alternative 6—*Create a unified metro fire district covering entire county.*

In this alternative, a single fire protection district would be created from the existing FPDs and the City of Springfield to cover the entire county. It would likely require a tiered service arrangement. While there would be some benefits in terms of reduced administrative costs,

the CEC finds it unlikely that such an arrangement would generate enough support among rural FPD volunteers for a continued volunteer base to exist upon its implementation. A fully-paid department, in contrast, would lead to substantially increased costs in rural areas, which the CEC does not find necessary or in keeping with current citizen service expectations. Alternative 6 also leaves open the very significant question of which political entity would control a metro department.

Like Alternative 5, a single regional department has less likelihood to cost effectively improve volunteerism than some of the previous recommendations. The CEC feels that a metropolitan department covering the entire county would ignore the different service and taxation expectations of the urban and rural areas of the county.

Assuming the new FPD would be centered on the nucleus of the current Springfield FPD, this alternative also evokes a discussion of the high costs of fire protection associated with the Springfield Fire Department. As indicated on page 3, above, SFD has historically had high costs in comparison to peer jurisdictions. The CEC notes that many of these cost issues are related to provisions in its contractual agreement related to minimum manning requirements.[47] Extending the provisions of this contract and the pension liabilities that the city has incurred in order to provide similarly costly service in other areas of the county does not appear to be supportable both in terms of cost efficiency and demand for service.

Other Considerations

It is important to note that these alternatives largely exclude private ambulance services from consideration. Although they are addressed in the NEMSIS data early in the CEC's recommendation, as a whole, the CEC found the private agencies to be beyond the scope of its current mission and review. While the services of private ambulances are largely targeted toward the urbanized area under the current arrangement, they could play an important role in a largely regional solution, and further review of their functions and their existing utilization for EMS responses would be of benefit.

Associated Challenges & Obstacles to Implementation

These alternatives each carry unique associated challenges, which are largely dependent upon which districts or departments are involved in their implementation. However, some of the challenges weighed in considering the viability and desirability of each of the alternatives above are explored here:

Labor Relations

A primary obstacle to some of the alternatives listed above is the terms of labor contracts held by some of the departments. The City of Springfield, for example, is constrained by minimum manning requirements and would have to renegotiate their contract in order to reduce these manning arrangements. Such a renegotiation would be required should the department attempt to reduce personnel costs without incurring increased overtime costs. Labor groups should be included in discussions of efficiency activities throughout the implementation process, particularly as it is important to develop a shared recognition of the

[47] Stroisch, Deana (January 9, 2012). "Mayor, firefighters have deal to resolve manning issue." Available at: http://www.sj-r.com/top-stories/x449147119/Mayor-firefighters-have-deal-to-resolve-manning-issue.

distinction between standard EMS calls and fire attacks that require additional manning and attention.

Volunteerism, Labor Laws, and the Good Samaritan Act

Some of the arrangements described above also have the potential to influence how volunteerism is defined in the various fire protection districts. The districts will need to consider the implications of their actions that work toward combining districts or providing financial benefits to volunteers in order to ensure that there are no negative repercussions.

One potential obstacle could be a decline in the level of volunteerism resulting from a change in district boundaries. Current FPDs represent a social and cultural center for some communities' members. Further discussion could be beneficial to ensure that action steps taken do not impair this volunteer culture. One study conducted for consolidating FPDs in New York State summarizes this issue:[48]

> While the impact on volunteers remains unknown, the experience of other districts that have consolidated suggests that loss of membership was low. That is not to say that each company would not experience some turnover. However, the turnover will likely be balanced by an influx of interested members due to the larger district and the perception of increased opportunities. CGR did learn that the smaller companies remain very concerned that they not lose opportunities in regards to serving in district level positions.

Alongside the importance of local culture with reference to volunteerism and responsiveness concerns, the Fair Labor Standards Act (FLSA) has some bearing on volunteer fire protection reimbursement. The FLSA requires volunteers to be exempt from its provisions related to minimum wage and overtime compensation. However, compliance with the FLSA requires that volunteers only receive expenses, reasonable benefits, or a nominal fee for their services; and that they cannot work at the same public agency, while providing the same services, as a volunteer and as a paid staff member. Various stipend structure qualify for exemption for these fair labor requirements, including minimal monthly stipends or annual stipends, or per-shift stipends provided regardless of the amount of time spent responding to calls during on-call time. Typically, if a volunteer receives less than 20% of what it would otherwise cost the department for full-time personnel expenses, exemptions apply, and stipend arrangements are typically more defensible than hourly wages.[49]

Finally, concerns also exist that changing the structure of volunteer relationships with the department also has potential to limit Good Samaritan Act exemption from liability that volunteers currently hold. Generally, best practice examples indicate that this is not an issue. Many volunteer fire districts nationwide provide stipends. Although this could be an indication of duty on the part of the district or its volunteers, Illinois' Good Samaritan Act (745 ILCS 49/) is written with provisions to be "liberally construed to encourage persons to

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[48] Sittig, Scott (2011). "Hamlin, Morton, Walker Fire District Consolidation Study: Baseline Review and Analysis of Options." *Center for Governmental Research.* Available at: http://www.cgr.org/reports/11_R-1662_HMWFinalReport.pdf

[49] International Association of Fire Chiefs (2006). *Managing Volunteer Firefighters for FLSA Compliance: A Guide for Fire Chiefs and Community Leaders.* Available at: http://www.iafc.org/files/1VCOS/FLSAManual_Small.pdf.

volunteer their time and talents."[50] While FPDs should consult their legal counsel on this issue, the CEC expect that the alternatives above would not greatly increase liability.

ISO Classifications[51]

The CEC also suggests that it is critical for local FPDs to consider the impact of implementing any of these alternatives on Insurance Service Organization (ISO) classifications. ISO is a vendor that uses a variety of metrics to rate fire departments and FPDs. In turn, private insurance companies responsible for insuring property rely to some extent on ISO classifications, or risk ratings of properties based on the quality rating of the fire protection available to them. The extent to which insurers rely on these classifications in developing quotes varies by private entity. However, there is potential for a change in insurance rates in some circumstances, and these questions should be addressed in a full consideration of implementation actions.

The CEC endeavored to document what the impact on ISO ratings might be vis-à-vis the alternatives for its recommendation. However, it was unable to acquire regional information on ISO ratings, as ISO classifications are provided only to individual FPDs and private insurance companies subscribing to ISO's services.

The primary factors related to ISO classifications are station location and hydrant locations. At-station response versus response from off-site is also an important consideration in ratings. Generally speaking, FPDs/departments can have two or three classifications assigned to properties within their district based on the department's capabilities. A department generally has a primary rating for properties within five road miles of a fire house that are served by a certifiable hydrant (pumping capability of 250 gallons/hour for 2 hours), a secondary rating for properties within five road miles that do not have hydrant service, and a third rating (Class 10) for those outside of five road miles from a station. For example, some properties (within five miles and hydrant coverage area) could have Class 6 ISO ratings, others (without hydrant coverage) could have class 8, and others could be Class 10, all within a single district.

The CEC expects that many properties in rural FPDs are already Class 10 properties, and that combining departments likely would not affect these departments' ratings. However, particularly in areas surrounding the urbanized area, such as the pass-through districts, there may be an increase in homeowner's insurance as a result of a change in FPD service. To provide an example of the potential impact on insurance premiums resulting from a change in ISO rating, a comparison of similarly valued properties in three distinct Class areas is provided below. These comparative figures are only estimates and provide an illustration of the range of impact that could occur from ISO changes.

Table 11: Illustrative Insurance Premium Comparison, $250,000 property[52]

ISO Classification	*Home Value*	*Premiums Quoted*
3 through 6	*$250,000*	*$1,420*
9	*$250,000*	*$1,960*
10	*$250,000*	*$2,500*

[50] 745 ILCS 49/2.
[51] All information related to ISO classifications provided via personal communication from Tom Geibel, Community Mitigation Analyst, ISO (November 14, 2013), or personal communication from Mike Aiello, R.W. Troxell (November 14, 2013).
[52] Personal communication from Mike Aiello, R.W. Troxell (November 18, 2013).

However, it is important to note that premiums will not necessarily change, and that different insurance companies treat ISO ratings differently. Moreover, there could be an improvement in some departments' ISO ratings resulting from certain alternatives explored by the CEC, as strengthened departments could offer on-call or station-based response in the future that do not currently provide this level of service. Finally, ISO classifications do not change immediately when FPD services are adjusted, but ratings are reviewed and adjusted over time.

FPDs should review their respective current ISO classifications with an eye for potential impact of the CEC's recommendations. For this reason, the CEC has not addressed specific fire house locations in combined districts explored in this recommendation document, but suggests that local leaders may be better-equipped to determine appropriate sites.

District Capacity and Feasibility of Alternatives

Many of these alternatives address resources reallocation toward the goal of creating stronger incentives for volunteer responsiveness. Given the overlap of drive times from current stations, the CEC first explored the potential for resource reallocation by examining the minimal number of fire houses needed to provide coverage across the substantial bulk of the geography of the entire county within a 10 minute driving distance (approximately 5 minutes for faster-moving emergency vehicles).

As the basis for selecting which districts' five-minute emergency driving distances should by examined, the CEC turned to the existing concentration of emergency response resources as a foundation. Budgets and call responses provided basis for assessing which jurisdictions had internal and external capacity to respond to calls. By budget, the districts in Sangamon County that have the most resources are Chatham, Sherman, Rochester, Athens, Pawnee, and Auburn. By call volume, the most active FPDs with stations in Sangamon County included Chatham, Rochester, Pawnee, Sherman, Auburn, and Riverton.

Coupled with this information, the CEC reviewed those districts that had greatest capacity to respond to calls within their own districts and in neighboring jurisdictions, as described in Tables 8 and 9, above. The rankings based on these components, which were used to guide the CEC's determinations about internal and external capacity, are listed in Table 11, below.

The higher rankings on the first three indicators ranked above would preliminarily indicate greater capability to respond to calls inside and outside of the FPDs current jurisdiction. Conversely, a higher ranking on the fourth indicator would indicate that a department may have more limited capacity.

Based on this information, the CEC developed a drive times map using only the six highest-capacity districts. Finally, because of the importance of geographic coverage, in addition to the six districts included above, 3 other districts were added to the minimal coverage map presented in Figure 12, below.

Table 12: Capacity of Current Departments on Four Indicators, by Rank

	High-Capacity Indicator			Low-Capacity Indicator
Department	Rank by Budget (Largest to Smallest)	Rank by Calls Responded to in 2011-2012 (Most to Least)	Rank by Call Response Outside of Jurisdiction (Greatest % to Least)	Rank by Need for Neighboring Responder within Jurisdiction (Highest to Lowest)
Athens	4			
Auburn	6	5		
Buffalo			1	2
Chatham	1	1	4	
Dawson			2	3
Divernon				5
Mechanicsburg			3	1
Loami				4
New Berlin			5	
Pawnee	5	3		
Rochester	3	2		
Riverton		6		
Sherman	2	4	6	
Williamsville				6

An approach that utilizes existing infrastructure was important to the CEC on the basis of cost-effectiveness. Given the coverage depicted in the under-ten-minute ranges displayed above, the CEC felt that adequate coverage might be available with a five-to-ten minute range using only these jurisdictions. It therefore explored realigned existing FPDs into four consolidated districts as displayed on the map below (Figure 13).

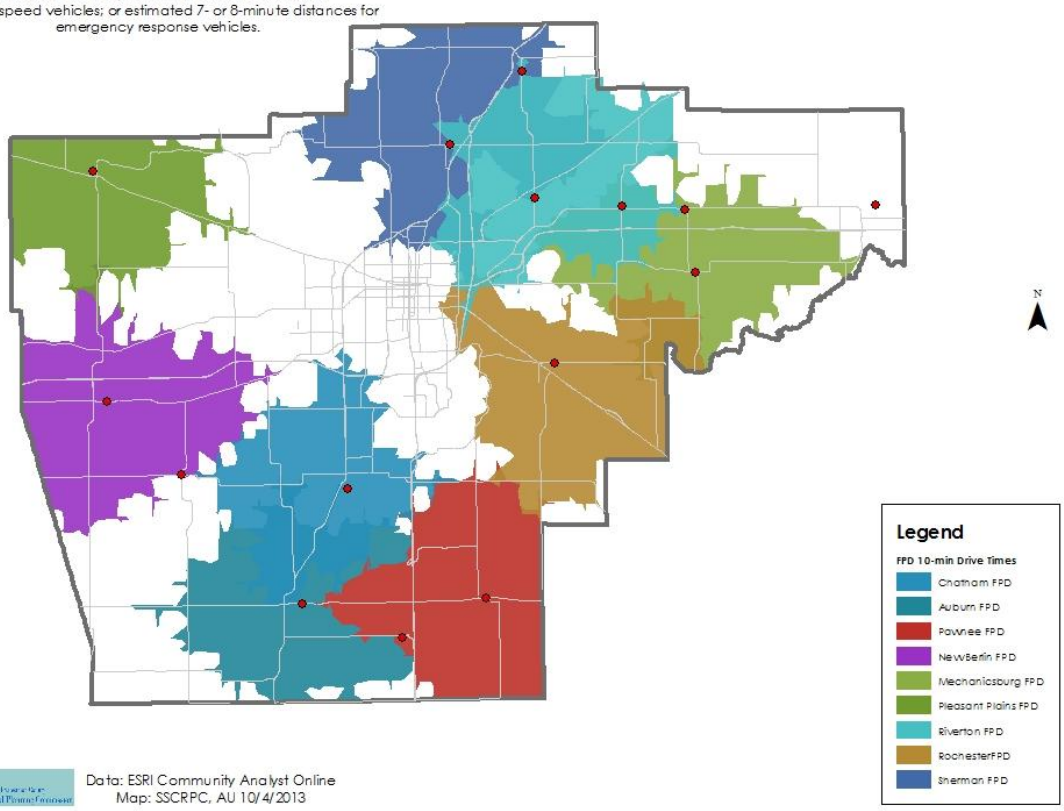
Finally, as discussed in Alternative 3, the CEC also found it feasible to anticipate that some of the existing stations could be designated toward EMS on-call volunteers, rather than requiring full fire equipment. In each of the districts, the CEC has highlighted two to three potential stations that represent locations where fire or EMS equipment could be housed in the future. Districts can establish via discussion which are the most appropriate locations for full fire apparatus, for transport vehicles, or for other, more limited resources.

The CEC also preliminarily explored the question of resource feasibility for various incentive arrangements to increase volunteerism within these districts. Although the CEC finds that determining the appropriate tax levies for these combined districts is a question best addressed locally, it felt it important to ensure that combining districts at minimum had potential to provide some level of incentives for increased responsiveness that will be necessary to cover a larger geographic base.

While some adjustment of levies will likely be necessary, if the districts combined in the pattern displayed above or a similar fashion, with only their current funding levels district budgets in the rural areas would have from just under $1 million to over $2 million. These combined revenues would allow for a stipend or a blended force. Assuming a $100/day stipend for daytime on-site volunteers on week days, a district would need approximately $52,000 for each day-time on-call staff member. The CEC finds it feasible a reasonable level of service could be provided with the combined departmental resources.

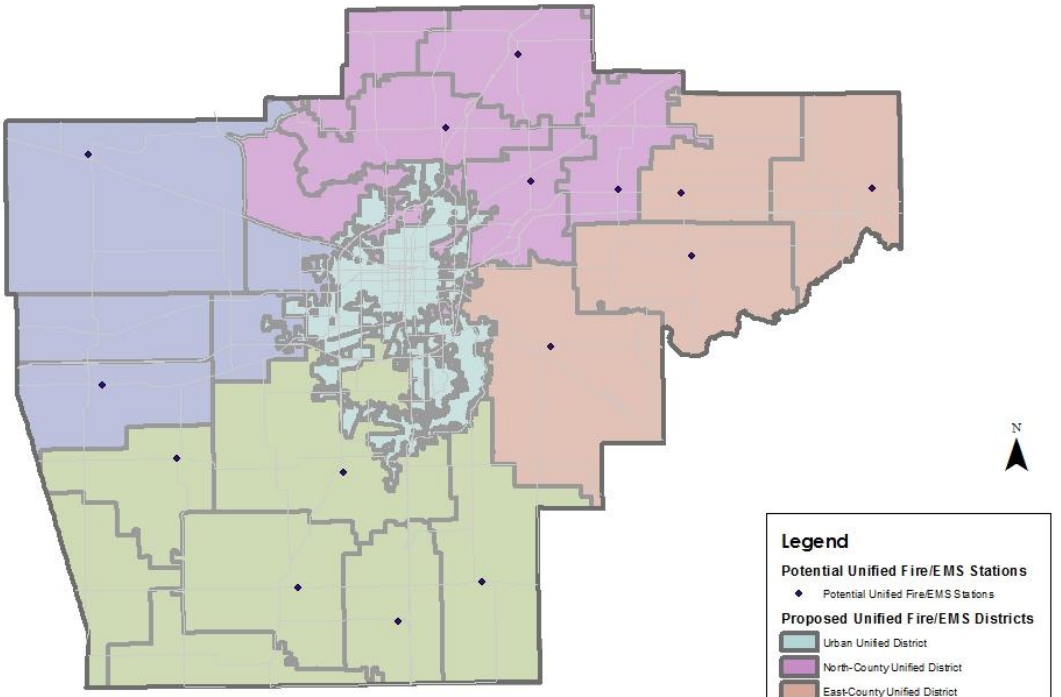
Figure 13: FPD Drive Times, Reduced Number of Stations

Note: Drive times represent 10-minute distances for average-speed vehicles; or estimated 7- or 8-minute distances for emergency response vehicles.



Data: ESRI Community Analyst Online
Map: SSCRPC, AU 10/4/2013

Figure 14: Proposed Unified Fire/EMS Districts



Data: ESRI Community Analyst Online
Map: SSCRPC, AU 10/11/2013

Recommendations

The CEC's final recommendation represents a selection of the portions of each alternative deemed most beneficial, as informed by the feasibility discussion above. Specifically, portions of Alternatives 3 and 4 were deemed beneficial through the feasibility research.

In light of the research presented below, the CEC recommends that fire protection districts and departments in the region pursue consolidation and resource reallocation toward the creation of four districts, each with one to two Fire/EMS stations, with response times strengthened through a stipend or on-call arrangement.

The CEC further recommends that the City of Springfield engage in a comprehensive program review in order to address budgetary needs resulting from potential reallocations and explore cost drivers described throughout this recommendation.

If necessary, the CEC recommends that a targeted action team be created for the purpose of pursuing and coordinating these efforts.

The potential or feasible benefits of implementing the recommendations detailed above include:

- Improved volunteer responsiveness on a relatively low-cost basis.
- Better resource allocation across the region.
- Increase equitable distribution of resources and costs.
- Reduced waste from duplicated and unnecessary equipment.
- Increased ability to measure performance and develop capital plans for regional resources.

Steps toward Implementation

In order to implement this recommendation, the CEC recommends that the following course of action would be beneficial:

- Review CEC analysis and data to determine the appropriateness of select district consolidations and feasibility of new revenue sources to support increased service levels.
- Begin levying for FFIF in all FPDs in order to increase the revenue base available for stipends.
- Conduct analysis related to the appropriate tax levy in each of the proposed FPDs.
- Work to ensure that all current rural chiefs and forces are fully engaged throughout the discussion and that a robust volunteer base will be available in proposed new districts.
- Propose and promote referenda in each FPD in order to allow for legal consolidation of FPDs.
- Consolidate FPDs as deemed most appropriate and as permitted by voters via successful referenda.
- Implement actions to increase responsiveness of volunteer forces through one-three Fire/EMS or EMS-only stations per new district.

In addition to these implementation actions that address the first among the three recommendations listed above, the CEC has recommended that the City of Springfield should address budgetary concerns through a program review. This may become

increasingly necessary as changes take place related to the structure of fire protection in the surrounding region. Because it is arguably beyond the CEC's mission to specifically address actions that should be taken within a single jurisdiction, the CEC did not thoroughly explore the operational efficiency of the SFD. Comments on the current operations and policies of the SFD throughout this document represent only preliminary explorations of the issues. However, as a distinct implementation action from those listed above, the CEC recommends the City pursue an internal or external review of SFD performance. Preliminarily, the following cost drivers and operational concerns appear to the CEC to be important areas to address in such a review: Foreign Fire Insurance Fund management and use, the importance of fire class and SFD's recent switch to Class III qualification, the structure and policies of the SFD pension board, SFD personnel policies, the locations of existing and future fire houses, and the potential for a new EMS model that addresses changing service needs in the region.

The CEC offers its support for these implementation efforts. If the CEC can provide any further assistance in facilitating efforts toward cooperation, it would be pleased to do so.

Respectfully submitted,

Hon. Karen Hasara, Chair
on behalf of the
Citizens' Efficiency Commission
for Sangamon County

Appendix A: Equipment Available in Sangamon County FPDs

[The CEC has provided information for those forces responding to its request for information only.]

		Equipment	#	Type/Comments			
Chatham FPD	Chief Philip G. Schumer, #1 Fireman Square, Chatham, IL 62629	1990 Chevrolet/ SEMO Tanker	1	tanker			
		1991 E-One Engine	1	engine			
		1999 Ford/ McCoy-Miller Ambulance	1	ambulance			
		2000 Chevrolet Pick-up w/ snow plow	1	utility vehicle			
		2000 E-One Engine	1	Engine			
		2000 16' Trailer	1	Trailer			
		2000 John Deere Gator w/ MedBed	1	6x4, Gator			
		2001 E-One Engine	1	aerial- 95 ft			
		2002 Chevrolet Tahoe	1	command vehicle			
		2006 Ford F-550	1	Brush Truck			
		2007 Sterling Exterra/Horton Ambulance	1	ambulance			
		2008 E-One Engine	1	engine			
		2010 Ford F-550	1	Brush Truck			
		2010 Freightliner/Horton ambulance	1	ambulance			
Sherman FPD	Chief Todd Masterhan, 2215 E Andrew Road, Sherman, IL 62684	2007 Pierce Aerial Ladder	1	Ladder; 2000 GPM			
		2000 Ford/Alexis Brush Truck	1	Brush Truck; 300 GPM			
		1999 Pierce Rescue Engine	1	Engine; 1500 GPM			
		1985 Ford/Pierce Engine	1	Engine; 1000 GPM			
		2013 Freightliner/Pierce Tanker/Pumper	1	1000 GPM			
		Power unit, Cutter, Spreader, Ram	2 sets	Holmatro Extrication Tools			
		Rope Operations Sets	2 sets				
		Scott 4.5 CBRNE 4500 psi	23				
		Eagle Air Compressor W/Cascade	1				
		Eagle Mobile Fill Station W/Cascade	1				
Sangamon County Rescue Squad	Chief William Russell, Jr. 2801 N 5th St. Springfield, IL 62702	**Heavy Equipment**			**Pump Size**	**Fitting**	**Comments**
		2002 International Heavy Rescue	1	Heavy Rescue	12,000 lb. electric winch		Night scan light tower 6,000 watts
		1983 International, Alexis Tanker/Pumper	1	Tanker/Pumper	1250 Gallons Per Minute	5', 2.5', 1.5"	
		1985 International Roll-up Box truck	1	Medium Rescue	50 Gal, mounted inch and a half foam system		
		1988 Ford Super-duty Utility Bed	1	Light Rescue	8,000 lb. electric winch		
		1980 GMC 1-ton 4X4	1	Utility/Crash Truck	Ansul Skid system 450lb Purple K, 100 Gal AFFF		10,000 lb. PTO winch
		2008 MAG miniature utility truck	1	Utility Truck			
		2004 Ford Expedition	1	K-9 Transport			
		Tanker(s)		**Size/Gallons**			

		1983 International Alexis Tanker/Pumper		1000		
		Extrication Tools		**Make (Brand)**		
		Holmatro Truck Mount Rescue System		Holmatro		
		Holmatro Portable Rescue System		Holmatro		
		Hurst Rescue System		Hurst		
		Lukas Rescue Tool		Lukas		
		Phoenix Rescue System		Phoenix		
		Air Bag(s)		**Lift Weight Capacity**		
		Low lift high pressure	4	20,000	12-inch lift	
		High Lift Low Pressure	2	30,000	48-Inch lift	
		Submersible lift bags	3	2,000		
		Water Rescue Vehicles				
		Bass Tracker Bass Boat W/ 25HP Outboard	1		Side Scan Sonar Unit	
		28 Foot Pontoon W/125HP Outboard	1		Dive Platform	
		16 Foot Flat bottom Boat W/25HP Outboard	2			
		16 Foot Flat bottom Boat W/50HP Outboard	1			
		3-Man Hovercraft	1			
		Dive Team	YES	Wet and Dry Suits	14 Members	
		K-9 Search and Rescue Team	YES		12 Members	
		Certified Cadaver Dog Team	1			
		Ropes		**Type**		
		Static, Dynamic, Dive, Communication, and utility				
		Air Packs				
		4500 PSI MSA SCBA	**4**			
		4500 PSI Survivair SCBA	**4**			
		2260 PSI MSA SCBA	**2**			
		Air Compressor/Air Cascade				
		Macko High Pressure Air Compressor	1			
		8 Bottle , vehicle Mounted Cascade	1			
		4 Bottle, Storage cascade bank	1			
		Specialized Tools and Equipment				
		Confined Space Fan, and tubing	1			
		Grain Bin Rescue Tube	1			
		Tripod with lift system	1			
		Rescue Jacks Stabilizer System	1			
		Class "D" Combustible Metals extinguishers	3			
		125 lb. Dry Chemical, Ansul Wheel Units	5			
		Underwater Diver Communication System	2			
		Wheeled Generators and Lighting Systems	4			
		High Angle Rope Rescue Sets	8			

Appendix B: Ambulance Transport Service Incident Times, 2011-2012,
By Incident County, All Incidents with valid Zip Code/County (hh:mm:ss)

	Ambulance Agency	Average Time from Dispatch to Enroute	Average Time from Enroute to On Scene	Average Time from Dispatch to On Scene	Number of Incidents over Two-Year Period
Sangamon County	AMERICA AMBULANCE INC	0:00:07	0:06:56	0:07:03	9,572
	AUBURN AREA AMBULANCE	0:05:30	0:02:30	0:08:00	4
	CHATHAM FIRE & EMS	0:01:34	0:06:24	0:07:59	1,065
	LIFESTAR AMBULANCE SERVICE INC	0:00:21	0:05:48	0:06:09	12,597
	PAWNEE FIRE PROT DIST	0:03:32	0:02:40	0:06:12	258
	WAVERLY VOLUNTEER RESCUE SQUAD	0:05:42	0:05:22	0:11:03	36
	Sangamon County Total:	**0:00:21**	**0:06:15**	**0:06:37**	**23,532**
Macon County	ARTHUR AMBULANCE SERVICE	0:32:30	0:32:22	1:04:52	8
	CERRO GORDO COMMUNITY AMBULANC	0:04:00	0:06:49	0:10:49	11
	DECATUR AMBULANCE SERVICE INC	0:01:35	0:06:07	0:07:42	16,047
	DUNN'S AMBULANCE SERVICE	0:01:10	0:03:00	0:04:10	6
	HEALTHONE CCT, dba MEDICONE	0:03:17	1:24:17	1:27:34	7
	LOVINGTON COMMUNITY AMB. SERV.	0:04:00	0:04:15	0:08:15	8
	MOWEAQUA COMMUNITY AMBULANCE S	0:04:00	0:05:48	0:09:48	5
	SULLIVAN FIRE PROT & AMB DISTR	0:09:38	0:32:44	0:42:22	11
	Macon County Total:	**0:01:36**	**0:06:11**	**0:07:47**	**16,103**
Champaign County	CARLE HC DBA ARROW MEDICAL SER	0:01:13	0:06:42	0:07:55	6,817
	CHARLESTON FIRE DEPT AMBULANCE	0:00:00	0:05:57	0:05:57	24
	KIRBY HOSPITAL AMBULANCE SERVI	0:07:48	0:20:12	0:28:00	5
	PRO AMBULANCE SERVICE	0:00:43	0:05:22	0:06:05	19,323
	Champaign County Total:	**0:00:51**	**0:05:43**	**0:06:34**	**26,169**

Appendix C: Call Time Data for Sangamon County FPD/FDs (2011-2012)-Location Details

Responding FPD	Incident Location FPD	Call Count by Incident Location FPD	Average Elapsed Time-Dispatch to Arrival
AUBURN FPD	**AUBURN FPD Total**	**519**	**0:06:17**
	Auburn	513	0:06:09
	Chatham	2	0:15:30
	Divernon	1	0:08:00
	Loami	2	0:25:30
	Pawnee	1	0:14:00
BUFFALO FPD	**BUFFALO FPD Total**	**329**	**0:09:54**
	Buffalo	115	0:08:10
	Dawson	72	0:08:57
	Illiopolis	20	0:10:54
	Mechanicsburg	119	0:11:46
	Riverton	1	0:11:00
	Rochester	1	0:25:00
	Sherman	1	0:16:00
CHATHAM CFPD	**CHATHAM CFPD Total**	**1759**	**0:07:35**
	Auburn	9	0:13:47
	Chatham	1305	0:05:49
	Divernon	121	0:16:20
	Mechanicsburg	113	0:14:08
	Pawnee	1	0:14:00
	Rochester	3	0:21:40
	Springfield	207	0:09:36
DAWSON VFD	**DAWSON VFD Total**	**189**	**0:08:53**
	Buffalo	57	0:09:44
	Dawson	100	0:07:40
	Mechanicsburg	14	0:08:51
	Riverton	13	0:11:37
	Rochester	4	0:17:00
	Sherman	1	0:15:00
DIVERNON FPD	**DIVERNON FPD Total**	**246**	**0:08:25**
	Auburn	2	0:19:30
	Chatham	2	0:14:00
	Divernon	229	0:07:59
	Pawnee	10	0:10:18
	Rochester	3	0:24:20
ILLIOPOLIS VFD	**ILLIOPOLIS VFD Total**	**163**	**0:07:38**
	Buffalo	9	0:09:13
	Illiopolis	153	0:07:31
	Mechanicsburg	1	0:12:00
LOAMI FPD	**LOAMI FPD Total**	**209**	**0:06:30**
	Auburn	2	0:19:30
	Chatham	2	0:12:30
	Loami	195	0:05:57
	New Berlin	8	0:13:00
	Springfield	2	0:15:00
MECHANICSBURG FPD	**MECHANICSBURG FPD Total**	**118**	**0:08:33**
	Buffalo	29	0:07:43
	Dawson	1	0:00:00
	Illiopolis	12	0:14:05
	Mechanicsburg	72	0:07:44
	Rochester	3	0:17:20
	Springfield	1	0:07:00

NEW BERLIN-ISLAND GROVE FPD	**NEW BERLIN-ISLAND GROVE FPD Total**	**68**	**0:09:34**
	Loami	4	0:11:15
	New Berlin	56	0:09:15
	Pleasant Plains	2	0:14:00
	Springfield	6	0:10:00
PAWNEE FPD	**PAWNEE FPD Total**	**553**	**0:06:35**
	Auburn	1	0:16:00
	Divernon	16	0:08:07
	Pawnee	522	0:06:20
	Rochester	14	0:13:13
PLEASANT PLAINS FPD	**PLEASANT PLAINS FPD**	**37**	**0:11:31**
	Pleasant Plains	35	0:11:19
	Springfield	2	0:15:00
RIVERTON AREA FPD	**RIVERTON AREA FPD**	**335**	**0:06:09**
	Buffalo	4	0:06:45
	Dawson	4	0:09:30
	Riverton	320	0:06:05
	Rochester	1	0:14:00
	Sherman	4	0:07:30
	Springfield	1	0:07:00
	Williamsville	1	0:01:00
ROCHESTER FPD	**ROCHESTER FPD**	**578**	**0:08:51**
	Chatham	1	0:08:00
	Mechanicsburg	4	0:18:30
	Pawnee	4	0:11:00
	Rochester	1	0:17:00
	Riverton	568	0:08:45
SHERMAN FPD	**SHERMAN FPD**	**520**	**0:08:35**
	Riverton	6	0:13:30
	Sherman	452	0:08:11
	Springfield	3	0:09:40
	Williamsville	59	0:11:05
SPRINGFIELD FD	**SPRINGFIELD FD**	**19739**	**0:07:04**
	Auburn	3	0:06:00
	Chatham	82	0:10:01
	Divernon	1	0:17:00
	Loami	1	0:10:00
	New Berlin	6	0:15:20
	Pawnee	2	0:16:30
	Pleasant Plains	7	0:12:51
	Riverton	1	0:14:00
	Sherman	1	0:15:00
	Springfield	19635	0:07:02
WILLIAMSVILLE VFD	**WILLIAMSVILLE VFD**	**244**	**0:08:55**
	Riverton	3	0:19:00
	Sherman	15	0:11:28
	Springfield	1	0:31:00
	Williamsville	225	0:08:31
Grand Total		**25,606**	**0:07:14**

Note: Appendix C includes only those calls which could be coded to a specific geographic location, and also excludes false alarms, good intent, and cancelled calls.

Appendix D: Call Time Data for Sangamon County FPD/FDs (2011-2012)-EMS and Fire Detail

FPD	Call Count	Average Elapsed Time Dis. to Arr.	St. Dev.	Max. Time
AUBURN FPD	**542**	**0:06:20**	**0:03:27**	**0:31:00**
EMS	503	0:06:06	0:03:07	0:23:00
Fire	32	0:09:45	0:06:02	0:31:00
Other	7	0:08:00	0:01:32	0:10:00
BUFFALO FPD	**367**	**0:10:05**	**0:06:17**	**1:16:00**
EMS	274	0:09:48	0:06:12	1:16:00
Fire	56	0:12:34	0:07:14	0:40:00
Other	37	0:08:29	0:04:05	0:16:00
CHATHAM FPD	**2,153**	**0:07:45**	**0:07:14**	**4:06:00**
EMS	1,839	0:07:55	0:07:31	4:06:00
Fire	84	0:09:01	0:05:44	0:27:00
Other	230	0:05:58	0:04:40	0:20:00
DAWSON FPD	**221**	**0:09:03**	**0:04:46**	**0:26:00**
EMS	144	0:08:13	0:03:55	0:20:00
Fire	57	0:11:24	0:05:35	0:26:00
Other	20	0:08:15	0:05:47	0:23:00
DIVERNON FPD	**295**	**0:08:36**	**0:05:56**	**0:29:00**
EMS	224	0:07:41	0:05:09	0:26:00
Fire	40	0:13:03	0:06:45	0:29:00
Other	31	0:09:25	0:07:27	0:25:00
ILLIOPOLIS FPD	**198**	**0:07:45**	**0:03:23**	**0:21:00**
EMS	120	0:07:36	0:03:15	0:18:00
Fire	51	0:08:33	0:03:58	0:21:00
Other	27	0:06:49	0:02:21	0:12:00
LOAMI FPD	**224**	**0:06:43**	**0:04:54**	**0:26:00**
EMS	155	0:06:28	0:04:35	0:26:00
Fire	27	0:09:42	0:05:23	0:20:00
Other	42	0:05:40	0:05:07	0:16:00
MECHANICSBURG FPD	**139**	**0:08:50**	**0:06:04**	**0:29:00**
EMS	99	0:09:04	0:05:27	0:29:00
Fire	24	0:11:03	0:06:26	0:24:00
Other	16	0:04:04	0:06:58	0:19:00
NEW BERLIN-ISLAND GROVE FPD	**290**	**0:07:34**	**0:03:27**	**0:19:00**
Fire	21	0:10:17	0:03:13	0:15:00
Other	269	0:07:21	0:03:23	0:19:00
PAWNEE FPD	**615**	**0:07:00**	**0:05:01**	**0:40:00**
EMS	488	0:06:17	0:03:59	0:23:00
Fire	57	0:12:13	0:06:59	0:34:00
Other	70	0:07:48	0:06:47	0:40:00
PLEASANT PLAINS FPD	**46**	**0:11:43**	**0:05:46**	**0:30:00**
Fire	31	0:11:50	0:04:37	0:21:00
Other	15	0:11:28	0:07:50	0:30:00
RIVERTON AREA FPD	**423**	**0:06:46**	**0:03:58**	**0:31:00**
EMS	309	0:06:27	0:03:14	0:18:00
Fire	57	0:08:17	0:05:03	0:25:00
Other	57	0:06:56	0:05:46	0:31:00
ROCHESTER FPD	**664**	**0:09:20**	**0:04:39**	**0:37:00**
EMS	496	0:08:33	0:03:49	0:28:00
Fire	63	0:12:26	0:06:13	0:37:00
Other	105	0:11:14	0:05:46	0:33:00
SHERMAN FPD	**599**	**0:08:54**	**0:04:38**	**0:33:00**
EMS	435	0:08:23	0:04:16	0:33:00
Fire	68	0:11:55	0:04:57	0:24:00
Other	96	0:09:07	0:05:10	0:27:00
SPRINGFIELD FD	**23,959**	**0:07:05**	**0:05:01**	**3:11:00**
EMS	17,318	0:06:39	0:04:27	3:11:00
Fire	1,408	0:07:01	0:04:47	1:22:00
Other	5,233	0:08:30	0:06:24	1:50:00
WILLIAMSVILLE FPD	**277**	**0:09:15**	**0:14:59**	**3:49:00**
EMS	203	0:08:36	0:16:04	3:49:00
Fire	38	0:11:22	0:06:50	0:31:00
Other	36	0:10:40	0:14:55	1:24:00
TOTAL	**31,012**	**0:07:18**		